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MARCH, 1890.

PRACTICAL HORTICULTURE is popularly misunderstood, and this misunderstanding is productive of various bad results. The mass of those not engaged in the cultivation of the soil, mechanics, tradesmen, clerks and professional men see it in distorted proportions. Its pleasant aspects are always apparent, its troubles and difficulties and discouragements are never seen. One would not think of criticising the poet for throwing a glamour over the occupation of the milkmaid and the plowboy, over the hay-field scene with its MAUD MULLER, the grain harvest, the garden of luscious painted fruit, the apple gathering and the vintage; the spirit of poetry demands the

written words. The novice yields to the seductive influence, and the ranks of pioneer life has many recruits from this class. After one has had ten years' experience of frontier life he is able to read between the lines of these skillful tales.

In a similar manner dealers in real estate in California, in Florida, and in various other localities where fruit-growing has attained some prominence, are continually presenting to the public by newspaper advertising, by circulars and pamphlets, and especially by regular press

sublimation of its subjects, and we read the poet's productions with this understanding. But in business we expect to look at affairs with the light turned on at every side, not seeking to be pleased, but truthfully satisfied. Many of the advertisements of railroads interested in the sale of lands are as captivating as some of the choicest writings of romance, and stimulate the imagination to flights far beyond the sense of their

communications, inflated statements of the ease and profit of fruit-raising. These statement are often based on the exceptional production of a single tree or of some small area of ground. A false idea is conveyed, and by constant repetition it becomes fixed, and the popular estimate of the employment is radically wrong. Sometimes by cleverly worked schemes, a "boom" in land, as it is called, is caused, and real estate sells rapidly at greatly inflated value; each buyer is interested in maintaining the price and seeing it advance, but invariably the end comes, the bubble bursts, and those caught with the property in their hands are ruined or financially crippled, and these are usually the ones who have bought for actual occupation, in the belief that they were soon to rise to easy circumstances through fruit-growing. Those who bought and sold quickly took the money lost by the last purchasers.

Although "booms" are transient, real estate agents are persistent, and their specious advertisements are always displayed in the columns of daily and weekly papers, and silently do their work.

What we would have understood by those not having personal knowledge of the subject is that fruit-growing is not a pursuit whereby large profits are surely accumulated. That such a popular idea should exist is due, as we have noticed, to extravagant statements by interested parties, and fruit-growers themselves are often willing that the misapprehension should continue to bolster up the value of their own property. If we could know the failures of those who have started in fruit-growing in Florida and California, we should see that these outnumber many times those who have succeeded; and this is equally true of the whole country. Like every other business, whether there is to be success or failure depends upon the man rather than the pursuit. Commercial horticulture in all its branches, of fruit-culture, market gardening, seed-growing, the raising of trees, of flowering plants, of flowers for cutting, and all its other sub-divisions, is an arduous employment, requiring energy, skill, forethought and patience combined with a great deal of hard work to produce satisfactory results. An investment of considerable capital is necessary, and the weather is always a source of some anxi-

ety, and not seldom the cause of the partial or total loss of a crop. It sometimes happens that the seasons combine their happiest effects with the cultivator's labor and skill, and he is then made glad by an abundant reward. Such occasional crops are usually the basis of inflated representations of the profits of the business.

Another idea of mischievous tendency circulating through the press is that horticulture is a business particularly eligible to women. The last twenty-five years has shown us that women can succeed in almost any field of labor, or rather that now and then there is a woman who can occupy an advanced position. Women have entered the learned professions and successfully ranked with their brethren. A few have become conspicuous as farmers, as cattle breeders, and in the various branches of practical horticulture. But it cannot be admitted that horticulture presents any particular advantages for women's work, except as an associate, an assistant and adviser with man; in this relation her usefulness may be of the highest character—in fact, neither the farmer nor the horticulturist can effectually prosecute his work without woman's co-operation. But to open some branch of horticulture to the prosecution of women with a little or even no means, as a source whereby they may gain a livelihood is, to say the least, to mislead them, with unpleasant results.

There are two other classes of town residents who look toward "a little place in the country" with hopes that are almost sure to be blighted whenever the reality succeeds the pleasant visions. One of these is the clerk, or the mechanic, or the widow, each with more or less family and a little means, who find the battle for life a hard struggle in the town. It is seldom that a change from city to country life can be made by such parties to advantage. In most cases there is an utter inability for the parties to adapt themselves to the new conditions; their habits, their training and their ignorance of the proper ways in country life, make them always feel like strangers in a strange land.

The other class we would mention is the well-to-do townsman, who desires a country place as a summer resort, and who hopes to make it pay by having a farm workman care for it. In this he will be disappointed. A country summer residence may be a source of health, comfort and enjoyment; but like all other good things, it must be paid for.

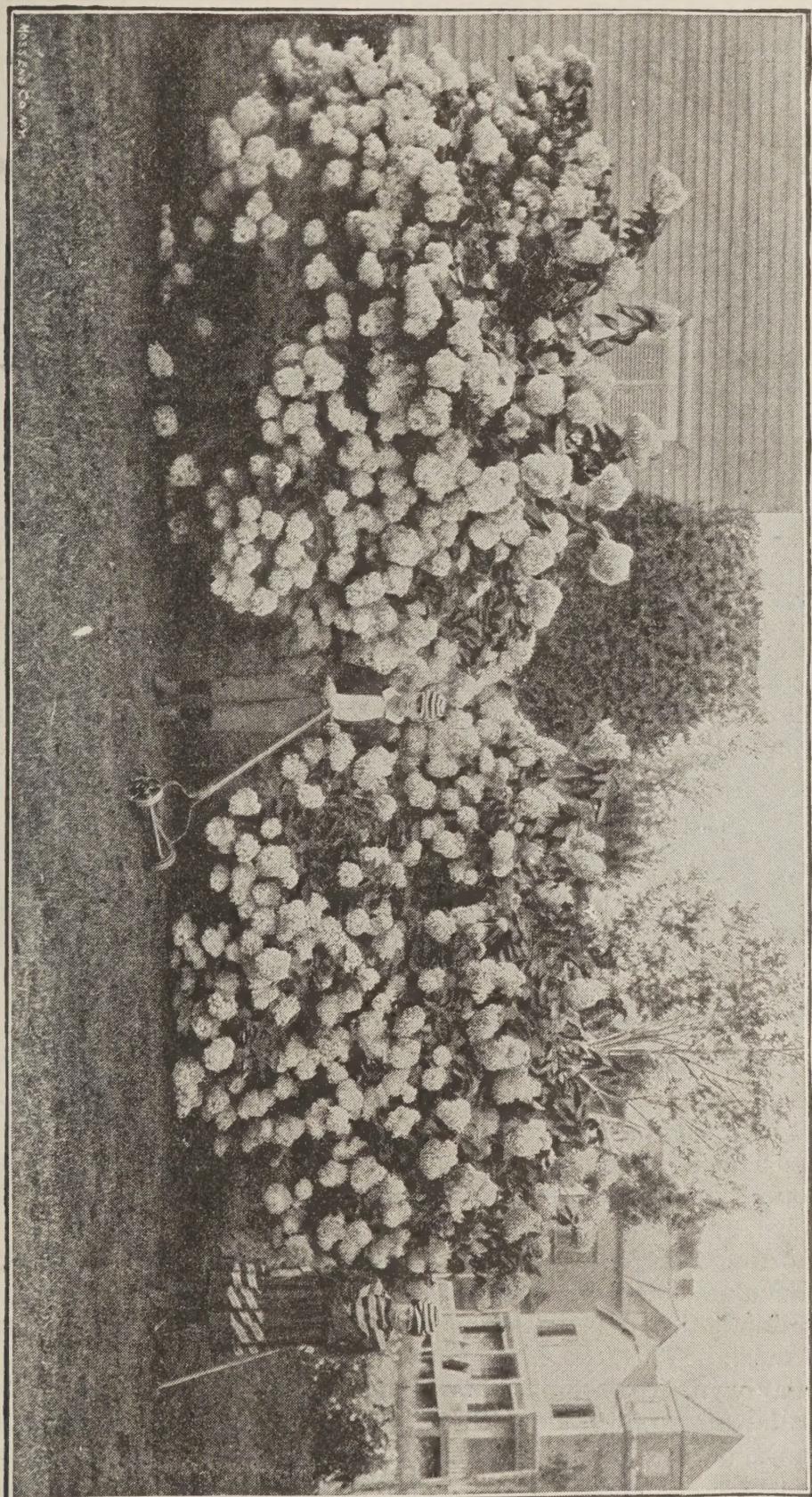
HYDRANGEAS.

These plants are natives of this country and of China and Japan. Our native species have never been given any special attention in cultivation, though they have been employed in gardens for a long period. There are three of these, *H. arborescens*, *H. radiata* and *H. quercifolia*. The first named has the northermost range,

growing from New Jersey to Illinois and southward. It grows from four to eight feet in height, and has leaves from three to six inches in length, and produces its flowers in flat-topped cymes; flowers usually fertile, seldom a few radiant and showy.

H. radiata is a shrub about the same size as the last, flowers in flat-topped cymes and not more conspicuous than those of *H. arborescens*.

H. quercifolia, growing further south, from Georgia westward, is, nevertheless, hardy in our gardens here, and is the best of the native species as an ornamental plant. It grows from three to six feet high, leaves four to eight inches in length, downy beneath, and lobed like those



of the Oak. Flowers whitish or cream-colored, in a close, oblong panicle, and many of them sterile, large and showy. Blooms in August, and is a desirable garden shrub.

The most showy Hydrangea, hardy in our gardens in this latitude, is *Hydrangea paniculata grandiflora*, of which an illustration is here presented, the engraving having been prepared from a photograph sent us by Mrs. ALBERT TURNER, of Passaic,

N. J., on whose ground the plants stand. We are informed that they were set twelve years ago, and that they are now twelve feet high, and the spread across them both is thirty feet. Some trusses of flowers, the past season, measured thirty inches in circumference. They are magnificent specimens, and show what a grand acquisition this plant is. They give their bloom in autumn, a season, of scarcely any other shrub, which, therefore, gives this Hydrangea great prominence and makes it indispensable to a well furnished garden. This plant has been before the public a number of years, and is becoming well known, but far less use is yet made of it than its importance demands. Many a garden could be brightened up in autumn by a judicious planting of it. Its great panicles are crowded with showy white flowers, which later take on a pinkish tinge. A most valuable trait of these flowers is their keeping quality; they do not fade or wither, but retain their form and fine appearance



HYDRANGEA HORTENSIA.

from the time they put forth until the close of the season, and then, when frosts approach, they can be cut and taken into the house and placed in vases without water, where they will still hold their shape without shrivelling, and remain as ornaments the winter through. The plant thrives with little or no attention, though a good, rich soil will develop it quicker and in grander proportions than a poor one. If desired the plant can be grown as a standard, with a single stem from one to three feet in length, supporting a large head. This Hydrangea is a native of Japan; the original species, paniculata, has never been so widely disseminated as this form of it.

The other illustration is that of a specimen of what is known as the Common Hydrangea, or *H. Hortensia*. This, too, is from a photograph, and was sent us by Mrs. J. W. BURRESS, of Baldwyn, Mississippi. The copy was taken in July of last year. We here see what a large size this plant will attain under favorable circumstances. At the South it is quite hardy; in this region it is cultivated in pots and tubs and taken into the greenhouse, or stored in the cellar during winter. This Hydrangea has long been a great favorite, and has been more cultivated than any other species. It received its specific name after HORTENSIA, wife of LOUIS BONAPARTE, and mother of LOUIS NAPOLEON. It is considered a variety of *H. Japonica*. This last named species, a low-growing plant with clusters of reddish tinged flowers, is the progenitor of a number of beautiful varieties.

WINTER FLOWERS FOR OUR COUNTRY HOMES.

Why plants do not thrive in the windows of our dwellings, is the question of many disappointed housekeepers after having tried the cultivation of them, especially to adorn their libraries and drawing-rooms. The fault seems to lie in every quarter, coal gas, light, etc., but from others we find they thrive no better with other heat and artificial light. What, then, is the cause of withering when so carefully tended and watered? Roses, Heliotropes and Geraniums are brought from greenhouses to southern windows, and, notwithstanding the closest attention, share the same fate.

Our houses are heated by furnaces, steam, hot water, or base-burners. The out-



WINDOW FOLIAGE PLANTS.

side air finds entrance through every crack and crevice, or by flues, and rushes in toward the heating surface. It then ascends or diffuses itself in the room, rushes down upon the plants, cooling them, then to the floor again to rise with the ascending current, with which it is carried to the window to pass over the plants again. So the work of drying goes on all day and night. It causes the leaves to dry up and drop off, and dries the earth so that the plants derive but little moisture from it. While this dry air is not in itself so destructive to animal as to plant life, yet it makes our dwellings most unhealthy and injurious, especially to children. Moisture may be diffused in the air of our rooms until it freezes on the windows. This will truly indicate the requisite degree of moisture necessary for plant life and health.

For the benefit of lovers of flowers who desire them for winter, I give an easy, effective and pleasing mode by which ornamental-leaved plants can be made to adorn our libraries, drawing-rooms and parlors with comparatively little care. In early fall I removed all winter-flowering plants, as Geraniums, Bouvardias, Carna-

tions, Lilies, Roses, etc., to a room in another part of the house which is kept only moderately, but evenly, heated. At the same time, I procured offsets or small rootlets of the Caladium esculentum, and also of the dark bronze variety of Canna, which had been dug from the lawn and were being stored and housed for winter.

I placed them in good, firm zinc-lined rustic urns, filled with Tradescantia. In a few weeks they leafed out enough to be placed at their respective windows, between brackets on each side, the first pair containing small plants of Palm (*Seaforthia elegans*), second pair, Ferns (*Microlepia hirta cristata*), above which are two smaller pots containing several plants each of Smilax which, running on wires, cover the whole upper woodwork of the window. On the floor, beneath each side, are Begonias (*B. manicata aurea*), a beautiful ornamental plant, leaves marked and blotched with cream color deepening to a light canary. It also stands the heat and dust well. To the right of the urn I have a Ficus (India

Rubber Tree), to the left Musa ensete (Abbyssinian Banana).

The advantage of such large pots or jars with handles is that they can be placed around the room, producing various effects during receptions, entertainments, etc., when in the country we are at a great loss to know how to decorate and beautify or supply foliage plants upon such occasions.

When the large leaves become dust laden, I occasionally sponge them off, and the large pots can be carried to open windows or verandas and given a bath if not very cold. At the same time my shelves of bloomers that I removed to other quarters, have done far better, bright, fresh and green, and am rewarded by blooming Scarlet Geraniums and Salvias to brighten up with, both for bouquets and epergnes.

The pots of flowers for our very warm rooms should be placed in zinc lined trays, with the sand kept moist. These precautions will secure a healthy atmosphere, not only for plants but for ourselves.

MRS. R. J. H., Glyndon, Md.

* MARCH IN NEW ENGLAND.

Winds blowing across abrown fields, patches of snow lying here and there in the corners of the fences, orchard trees looking black in their naked grimness, but Elm, Poplar and Birch swaying their graceful branches, on which a few buds are beginning to swell. Blue skies with great masses of soft, billowy clouds, white and silvery, rolling swiftly across the azure fields of heaven from scarlet and purple sunrise to crimson, amber and golden sunset. A flash of blue in the early morning, and lo, a blue bird on the apple tree at the back door, while three crows sailing lazily overhead caw loudly and hoarsely.

The sparrows have lost their pitiful chirp of the winter, and in the vines against the brick wall are twittering merrily before sunrise, and taking the crumbs with a saucy peck instead of the hasty snatch of a week or so back, when they gathered, shivering, under the eaves. The ground is frozen hard and the hol-

lows in the wood path have little patches of thin, white ice crystallized into ferns, stars and moss patterns. The jays call to each other from hemlock and oak, where the dried leaves still rustle in the fierce winds, and drop off only when pushed by the new buds that swell so rapidly.

Listen to the ripple and gurgle of the brook over the stones; its icy roof sparkles in the clear sunshine which gleams through the hemlocks. Its imprisonment will last but a little longer, and the ferns which lie so flat will turn from their bright green to brown as the new fronds uncurl; the alder tags will drop their golden pollen dust over the brown, cone-like, last year's fruit, and the pussy willow will give promise and prophesy of the days to come. The blackberry vines lie on the ground, still holding the dark red hue of October; the blackbirds fly over the swamps where the first frog is trying to croak. You scent the buds of the Balm of Gilead as you step from one green tussock to another, to find in the meadow the rare fruit of the sphagnum.

* Descriptions from notes made after each day's walk in the spring of 1889.

After three o'clock in the afternoon the radiance in the west grows golden, and the old fable of King Midas is repeated until the hills are threaded with streamlets of light, and every little pool reflects like a mirror and looks like molten gold.

Another day, and the mercury falls lower and lower, the white flakes fly through the gray air, there are white caps among the broken ice on the river, the wind howls through the pines, and the gnarled boughs of the great oak creak and groan like the wail of a lost soul. The clouds change to violet, with their silver edges sharply defined against an amber sky; then the sun appears, and the flaming ball

slowly sinks behind the mist-crowned purple hills, out flashes the colors of the Great Painter before our eyes, "new every morning and fresh every evening."

As the light fades we see the line of snow on the hills; star after star comes forth from the sky, as brilliant as in January. The frogs croak till nearly midnight, and then an almost perfect silence, not an insect to break the stillness until just before sunrise we all rush out of doors to see the long line of wild geese flying northward, and hear the shrill "honk, honk, honk," proclaiming that winter is going; and this is March in New England. FLORENCE I. W. BURNHAM.

CROSS-FERTILIZED CORN.

I have before me five ears of Maize, or Corn, four of which are the Flint variety, called White Smut. The other ear is the Sweet Corn, Early Minnesota. Two of the former were cross-fertilized with the latter variety. The other three were self-fertilized, or self-pollenized.

My object in giving you the following account is to show your numerous readers the fallacy of the popular idea that cross-fertilization of Corn is apparent the same season it is effected. I planted part of a row of the Flint Corn mentioned entirely surrounding it with rows of the Sweet-Corn. Before the tassels of the former had completely emerged from the top of the stalks, certainly before they had shed any pollen, I pulled them out as fast as they appeared, in order to prevent self-pollination. My next step was to take tassels of the Sweet Corn in full bloom and fasten them over the silk on the ears of the Flint variety, although it may not have been necessary to do so as the wind will convey the pollen from one row to another. The result was a good yield of the latter, from which the samples labelled "cross-fertilized" were taken. Not a single kernel of the shrunken Sweet Corn is to be seen in those samples, nor any intermediate appearance, neither was there in the entire crop borne by the decapitated row.

Next year, however, if the sample seed is planted the crop will be as badly mixed as the two varieties can be. Besides the foregoing, I planted a small patch of the Flint Corn beyond an inter-

vening rise of ground, so far distant from the other as to prevent pollination from that source. My object in doing so was to obtain the pure variety grown the same year for comparison with the cross-fertilized product. The two ears before mentioned, labelled self-fertilized, came from this separate lot. There was no other field of Corn within a distance of ten or fifteen acres square, and the nearest was not in the direction of the prevailing wind.

While it is true that unless the pistils (silk) of Corn receive pollen from the tassels no kernel will form on the ears, it is absurd to suppose the minute quantity of pollen which descends through each long, thread-like style to the ovules transforms those ovules into seed of its own kind. It makes no external change in the seed. Pollination merely enables the ovule to develop into the seed proper by forming an embryo within it. When the embryo of a cross-fertilized seed grows up out of the ground the cross-bred plant appears, when that plant ripens its seed the cross-bred grain is produced, never before. In order to make the experiment a certain test of the effect of cross-fertilization the varieties used must be distinct and entirely pure, because if once mixed through pollination the crop will continue mixed for generations, even though the apparently pure seed be selected for planting.

I surmise certain learned professors of horticulture who have tried the experiment, have been deceived by such occa-

sional reverions, supposing them to be the immediate results of cross-fertilization. How rarely is a crop of corn found entirely without mixture, grown far from any other sort, and a variety kept pure for many generations. Hence, there may be difficulty in obtaining proper subjects for a test.

Years ago I happened to meet a western farmer, who told me he once bought some corn for seed which, after careful scrutiny, appeared to be entirely pure, and planted it on the prairie five miles or more from any other field of corn, yet it bore the worst mixed crop he ever saw in his life. I replied that the raiser of the seed he bought must have grown it along side some other sort, which cross-fertilized it.

During all my experience in the cross-fertilization of varieties of fruits, comprising the apple, pear, cherry, strawberry, grape, currant, raspberry, gooseberry, never yet have I seen any variation in a fruit resulting from cross-fertilization of the flower which produced it; not even in the appearance or formation of seed contained in that fruit, although the number might be proportionate to the congeniality of the pollen applied. I

am certain that in all cases of sufficient congeniality of the pollen to form seeds and thus enable the fruit to develop, the latter will be normal in every respect. My experiments extend over a period of thirty years. During that time I have pollinated thousands of the flowers of the black grapes with white and red ones, and *vice versa*. So have I done with like colored varieties of other fruits. Had the color of the fruit been changed thereby, I certainly could not have failed to observe it.

I am aware the eminent naturalist, CHARLES DARWIN, has cited statements ascribing to cross-fertilization of the flower a change in the color, skin and flesh of the fruit developed from it; but hard facts compel me to believe them to be mere fancy sketches of the author. If some of the alleged instances of change did occur, they were either characteristic of the variety, or bud variations, termed sports, not due to the cause assigned. The subjects of DARWIN's own experiments in cross-fertilization were annual flowering plants instead of fruits, hence he did not discover the fallacy of the statements he has quoted.

JACOB MOORE.

A BEGINNER IN FRUIT-GROWING.

NUMBER 5.

The fundamental principle of mathematics, that the greater includes the less, is not more true than that the crop that is to occupy the ground for several years requires more careful selection of soil, more perfect adaptation and better preparation than one that is only to use the soil for a few months; yet the practice of many farmers and beginners is exactly the reverse of this, and berries and orchards are often planted on soils and with preparation that would make an oat crop turn yellow from starvation.

I had written thus far when the January "VICK'S," just from the office, met my eye, and I dropped my work to look into it. It proved so interesting and fascinating that I read it clear through, some articles twice, before I laid it down, and on the last page an item in reference to Cranberry culture brought to my mind an instance right in point.

The owner of a small piece of land in

the edge of a village possessed a small, swampy corner cut off from the rest of his land by a railroad. He thought to make it useful by planting to Cranberries. It was a stiff clay covered with irregular hummocks of sour grass and Cowslips, with a lingering memory of a peaty marsh, where I once gathered Cranberries, I told him I thought it was not adapted to the crop. He imagined he knew best, having read the advertisement of a Massachusetts dealer, that claimed Cranberries could be grown anywhere, and so I ordered for him, under protest as it were, of a Cape Cod grower, plants that cost him seven dollars. He planted them, and in due time, as I expected, reported a failure. One day, in walking down the railroad track, I looked over the fence at the prospective Cranberry marsh. The rough, tough, rooty sod had been turned over and lay about as the plow left it. It was before the day

of clod crushers and disk harrows, and the work of the old-fashioned harrow was barely perceptible. The ground had not a particle of muck in it, and the clay sods dried in the sun could have been laid up into a tolerable cellar wall. Into this sort of place the man had planted with a heavy grub hoe the slender stems and thread-like roots of his Cranberry plants.

This man had a good garden, and his potatoes and corn in the field were well taken care of and planted on properly prepared soil, but for some inexplicable reason, when he came to plant a crop that the catalogue said would net seven hundred dollars per acre, he did not use ordinary common sense in either selection of soil or the preparation of it.

For the last half dozen years a farmer acquaintance of the writer has been "fixing up." He has built a three thousand dollar house, a fifteen hundred dollar barn, and adjoining them put out an acre of choicest fruit trees—apple, peach, plum and cherry. They were put out with a grain crop sowed to clover, and no cultivation whatever has been given. It is needless to say that after three years no marked increase in size or vigor is to be perceived. Like city cousins who visit their country relations every summer, they do not board but are simply "staying."

But I must leave off telling how not to do it for something practical.

For Black Cap Raspberries or Currants there is little danger of getting the ground too rich. A study of the native haunts of the Raspberry, growing by decaying stumps and logs, and in rich fence rows, should convince any one what the needs of this fruit are. Raspberries seem to take considerable from the ground, and, unlike Blackberries, leave it after a few years very much impoverished. The difference in the first crop of Raspberries between rich and poor soil is wonderful. A neighbor, last year, gathered two and one-half bushels of Gregg Raspberries from three rows twenty-four feet long. The canes arch seven feet from the ground, and are wonderful to see. The ground is a rich garden, and was top-dressed with fine manure.

An acquaintance planted one thousand Gregg Raspberries on a barn lot of very rich soil, and gathered, fourteen months

later, thirty bushels of fruit. Encouraged thereby, he planted five acres on ordinary or rather thin soil, and has not gathered an average crop in three seasons. A city florist and tree jobber planted four Doolittle Raspberry plants where a compost heap had lain. The growth was extraordinary; they were twice pinched back and one of the plants produced sixty-one canes that reached the ground and took root.

The experience of J. M. SMITH, of Wisconsin, of PETER HENDERSON and others, is that the ground that is full of humus and the unused portions of manure used in vegetable gardening is the best for heavy crops of Strawberries.

On account of the white grub it is necessary to plant sod ground two years in hoed crops to give this pest a chance to get out of the way, and the common practice is to manure in the spring that the Strawberries are planted, or more frequently not manure at all. I am convinced that ordinary manuring just before planting does not pay in proportion to the cost, as in the nature of things much of it does not become available until too late to help the growth. It is far better to manure heavily the crops of corn and potatoes in the years of preparation, and thus get a double recompense. All berry men agree that the first crop of Strawberries is the one to work for, and the extraordinary yield of two hundred bushels, and upward, per acre, is only obtained by the most careful attention to all those details that give the highest yields of ordinary farm crops.

In fitting the ground it is best to begin early, first plowing deeply, then pulverizing finely and finally floating down flat with a plank finisher or boat. When the earliest farmers plow for oats then fit the ground, even if it is a month or six weeks before planting. Weeds will start, but a sweep of the trowel removes those where the plant is to be placed, and cultivation between the rows can commence at once, destroying the weeds and aerating the soil.

The poorest part of a fruit farm may be planted in Blackberries, with a dead certainty that the land will improve in quality, and that the berries will be less subject to winter-killing. If desirable the ground can be top-dressed at any time afterward, by leaving the manure in piles

in the cross-paths and distributing with a hand cart or wheelbarrow. The Blackberry not only sends its roots all through the soil, but has large and abundant leaves which hang on until early winter snows bear them to the ground, where wet and heavy they never blow away,

but lie to form a mulch and aid in the nitrification of the soil. In this way the Blackberry not only holds its own, but slowly gains on the soil. My next article will treat of digging and care of plants, planting, &c.

L. B. PIERCE.

MARGUERITES.

Beautiful names will often tempt people to purchase plants of which they know nothing, and which, too often, fall short of cognomens and anticipations; but I have never regretted the wandering fancy which led me, a year or two ago, to enrich my collection with what I call my "set of Marguerites." The sweet meaning and association of the name, together with its traditions and historical memories, made me handle the plants very tenderly, as I took them from one of VICK's long, light wooden boxes, one spring day, and eye them with a sort of reverential curiosity, if there is such a thing, and plant them with the greater care.

Chrysanthemum frutescens is the white Marguerite with yellow disc, much resembling the Ox-eyed Daisy, but having the odor of a Chrysanthemum, with a finer cut and lighter green leaf, and blooming all the year round, if you will let it. I did not want mine to bloom in the summer. I had visions and dreams of gathering its starry flowers all winter, and did not know the accommodating nature of the plant, so I planted it out in a rich, sunny border to make strong roots, and by autumn it was a bushy, compact little plant, about two feet in height, full of buds which wanted to open so bad. But I pinched them all off again, and taking a spade cut round it in a circle, thinking to leave it for a day or two till the wounded roots should heal and then take up and pot it. But, ah, I had not well estimated the energy and enterprise of those roots. I noticed it the next day, about noon, to be all withered, and when I took it up for potting, judging from appearances, I think I had left the greater part of those roots in the ground. But the heroic little plant, after having its top pruned to balance, and a week of shading and sprinkling, with its roots buried in a large pot of light, rich soil, brightened up again, and I was de-

lighted, although I gave up the hope of flowers that winter. Contrary to my expectations, new buds came on with new leaves, and every winter since, the children and grandchildren of that Marguerite have been showers of snowy stars.

Etoile d' Or, a golden variety of *C. frutescens*, is smaller, but very pretty for contrast, and the white and yellow blossoms, combined with the pure, bright blue one of *Agathea cœlestis*, also called Marguerite, and sprays of Smilax, make up the loveliest corsage bouquet imaginable. A Marguerite is lovely wherever you put it, and its long stems and slender, graceful habit make it especially beautiful for loose arrangements in baskets and vases.

Agathea cœlestis is not so tall growing as the two Chrysanthemums, but the culture, shape and style of flower is similar. All are winter bloomers, and I have found from various experiences that they like best a cool, moist, somewhat shaded situation, and a light, rich soil, with an abundance of water during the hot summer months. I keep rooted cuttings on hand and bed some out for blooming in summer, the others, remembering my first experience, I pot for winter beauty.

The three flowers are sometimes called "Paris Daisies," and a very fair representation of them was given in colored plate of VICK'S MAGAZINE for February, 1887.

I have seen the new monstrosities, "New Double Golden" and "New Double White" Marguerites of the florists, but a double Marguerite is something one does not like to think of. All its star-like beauty and grace and airiness is gone when the center is thickly and heavily crowded with petals till the golden eye does not show and the slender, swaying stems stiffened up to bear their weight. Why, a Marguerite is a Marguerite no longer when doubled. L. GREENLEE.

FOREIGN NOTES.

PRUNING ROSES.

Herewith is an extract from a paper on "The Pruning of Roses," read by the Rev. A. FOSTER-MELLAIR, at the National Rose Conference held in July of last year, at Chiswick, England :

The first care will be to cut out all dead wood, and all wood, however thick and old, which, as shown by the small growth made last season, is becoming weakly in comparison with other stronger shoots. Now we can study the plant, and see what we have left. Our object is to form a well-shaped head or plant ; and by "well-shaped" I mean that the plant itself should be of the even globular form of a Rose. Rose petals are evenly arranged, and none cross each other in an inward direction ; such should be the shape of the plant. Bearing in mind that the top bud left of each shoot will grow first, and in the direction in which it points, we should always cut back to a bud that looks outward, and take care that the center will not be too crowded. If we want to get rid of a misplaced shoot, it should be cut right out at the bottom, merely cutting it back will only make it grow the more. It must be our endeavor each year to do away with as much old wood as possible, especially in the middle of the plant, and, in the case of strong growers, we must harden our hearts and thin the number of shoots remorselessly. We should picture to ourselves what the plant will look in full growth, and remember that a lover of Roses is more likely to leave too many than too few shoots. There is a saying in East Anglia, "No man should hoe his own Turnips," meaning that he is not likely to thin them sufficiently, but those who are used to thinning Grapes and other garden produce will probably have got over this difficulty.

THE GOLDEN RULE,

The next question is, how many buds are to be kept on each shoot retained ; and the answer is to be found in the Golden Rule of pruning, that more buds are to be left on each shoot in proportion as the plant, both as a variety and as an individual, is strong, and less in proportion as it is weak.

To a novice in rose-growing it appears strange at first that we should cut away almost all there is left of a weakly growing and precious variety, which would seem to be almost exterminated by such severity, and yet leave longer shoots on a strong sort, which seems better able to stand the rough treatment ; but the rule is, nevertheless, in strict accordance with the law of nature—DARWIN'S survival of the fittest, and the law of GOD—"Whosoever hath, to him shall be given." It is of wide-spread application. In education, for instance, it is beginning to be found out that it is wiser to add to the knowledge a child possesses, and to concentrate all teaching on the one branch for which an aptitude is displayed, than to introduce a variety of subjects. But I must stick to Roses ; and we shall find the same rule apply in other branches of cultivation besides pruning. If we were to give directions to an ordinary laborer to apply liquid manure to the plants, we should very likely find him choosing the weakly

ones as recipients of stimulant and nourishment, and omitting the strong, on the plea that they did not want it. That would be a mistake ; it is the healthy and strong who want it, because they can use it. The weak cannot ; the nourishment they have is more than they can manage. Again, every rosarian finds that some varieties of Roses do well with him, and some do badly. The first idea is to grow less of the sorts of which we have plenty of good ones and more of those which have not been so successful. And an exhibitor must do this to a certain extent, but it is a pity ; it is doing that which we should always endeavor to avoid, viz., fighting against nature, instead of directing, and even diverting, and yet siding with her. To get the greatest number of most beautiful Roses we should grow those sorts only which we find do well.

The rule as to the number of buds to be left on each shoot, therefore, is in proportion as a plant is strong in growth, either from the natural habit of the variety, or, in a less degree, from the actual condition of the individual, leave more buds on each shoot, because the strong grower has a capability of supplying several buds on each shoot with a sufficiency of sap for good blooms ; and, if a due number be not allowed, the shoots will either not flower at all, or produce coarse and ill-shaped blooms. And, in proportion as a plant is weakly in growth, fewer buds should be left, because the weak grower has only sufficient strength to supply sap to one or two buds on each shoot, and if more are left, the power will not be sufficiently concentrated to form good blooms. The general habit of the variety should therefore be well borne in mind in determining how many buds to leave on each shoot, remembering always, with a view to the summer outline of the plant, to prune to an out-looking bud ; and that, as a general rule, the more a shoot is cut back, the longer will be the growth from the bud left at the top.

ARRANGING CUT FLOWERS.

A writer in the London *Garden* has the following to say on this subject :

Vases in improved forms for cut flowers are now so plentiful and cheap that there is little excuse for having to cram into one a lot of different kinds of flowers which cannot by any possibility be made to harmonize well together, or to have to put up an effort with a head one foot or more in diameter in a teacupful of water, and with a base so shallow as not to admit stems more than two inches in length, and even with these sand barely moist must be used to keep the flowers in position. No form of vase is less suited to the welfare of cut flowers than these vases, and yet no form is more common. The fewer the kinds of flowers used in each vase, the better

the effect in most cases, and such flowers as Sweet Peas, Chrysanthemums, Lily of the Valley, and, in fact, more than half the things one can think of, never look so well as when put up in a vase entirely by themselves and with their own foliage. Sweet Peas cut from a good strain give a variety of harmonious colors that cannot be improved with any addition; they should be cut with long stems, and all the buds and growth above the cut should be left entire. Of Chrysanthemums the same may be said, while nothing but its own leaves can enhance the simple beauty of the Lily of the Valley. In other cases, two, three, or perhaps more kinds of flowers may be used together, but they must have some special affinity for each other and the colors must blend well together. The one thing to avoid is a mixture in which color and form have to give way to variety, and simplicity to chaos.

STANDARD SHRUBS.

A correspondent of the *Journal of Horticulture* strongly advises training of many kinds of flowering shrubs as standards. Among others he mentions Lilacs, which as standards, he says, "they are the easiest to make, except the Snowball bearing Guelder Rose, which will make the most handsome of standards imaginable."

The common Syringa—*Philadelphus coronarius*—he also recommends treating in this way. "They make elegant little trees."

"I had a handsome, round-headed, standard of the old-fashioned Fly Honeysuckle in bloom, last May, and two young gardeners mistook it for *Weigela rosea*."

"Although I would strongly recommend this way of managing such plants, it is more for the purpose of getting rid of their propensity for throwing up a wilderness of suckers than for torturing

their heads into globular forms, like those of standard Roses. Indeed, I would rather let them take their natural way of growth, merely preventing any large limbs or shoots being formed to derange the balance of their growth; and this is effected by stopping over-luxuriant growths occasionally, and by pruning the shoots in the winter, according to their size and strength—that is, the very short branches to be only a little shortened, the middle-sized ones to have one-half or two-thirds of their length cut off, and the small spray either cut out entirely, or cut into a few eyes, according to their position, and not allowing any to cross each other. * * * All that is original in this plan is the certain way of getting rid of their contending suckers and side branches at once and forever, from the collar of the plant upward to the head.

PROPAGATING BOUWARDIAS.

A popular method of propagating Bouvardias among market growers at the present time is thus mentioned by a *Garden* correspondent :

This consists in taking cuttings from plants that are being grown for blooming during the time they are in a succulent condition. It is not shoots with two or three joints that are employed, but just the points, only long enough to allow of being inserted in the soil. In this way two birds are killed with one stone, the plants getting the necessary stopping to ensure a compact habit whilst furnishing cuttings that strike quickly in a suitable temperature. * * * * The cuttings were dibbled into six-inch pots surfaced with sand, and I should say that quite ninety-nine per cent. had made roots. In this way propagation may go on all through the spring months, so that young plants are always coming on.



PLEASANT GOSSIP.

A POPULAR BOTANY.

The plea for a more familiar work upon botany, made in the January number, page 16, will strike a chord of sympathy in many hearts. If there be many capable, it surely needs the work of a master, that it be complete and within popular limit. The teacher cannot fail to note the relief that a bit of familiar description brings to the student—a blessed reassurance even to an analysis, which he feels sure is correct.

The perfection of minute illustration at the present time seems to me the most potent factor in the possibility of such a work. Our need seems to be the same that was felt in the infancy of the science. The author of a handbook of botany, published in 1820, gives as a reason for the existence of his little book the expense of larger works; and, having "taken the liberty" of commending a work by LOCKE, remarks: "It is very cheap in proportion to its value."

Whether our "economical agriculturists and mechanics" are more "willing" to buy, will be proven in the experiment.

I have at hand, also, a work published at Amsterdam, in 1682, by "PETRUS NYLANDT, M. Doctor," in which a latin stanza as prelude implores BELGA that she looks no more to the "shrubs of the beautiful East," or the "twigs of dry Arabia," but to the riches within her own boundaries, which "Bavaria mater," "long neglected," is assured are now recorded. From the illustrations in this book one turns with a real relief to the much more familiar latin name.

I should like to exhort all young people to enter upon the study of botany in an orthodox way—a way far more satisfactory, and not at all tedious.

When an ordinary description can be as brief, it ought always to be used, but scientific terms are not at all formidable when one possesses the key that reveals their power of description. I remember no difficulties besetting the pages along which my mother guided me at the age of eight years.

Later, in the west, we were almost without a guide; our eastern teachers overwhelmed by our surplus of floral wealth, our *Manuals* very inadequate.

There is improvement needed in descriptions for our own immediate region, as yet unpublished, but the student of to-day walks a much easier pathway; albeit it lacks the flowers that nodded to us along the Indian's trail.

Discouragement in the pupil almost always begins when he finds himself unable to secure an analysis from the blooming plant. It would seem that differences so apparent might be susceptible of description, and so classified as to lead to identification without the seed, which the ordinary student can seldom have when he wishes. Such an idea, not at all unfriendly to perfect science, would influence much in the popular study of botany, and is only based upon the principle of to-day's tendency toward simplicity.

F. F. L. D., *Durand, Wis.*

THE GOOD OF READING.

My horticultural magazines are invaluable. A very small Amaryllis bulb was given me, and I planted it deep in the pot. After six months the two spindling leaves were in the same condition as at first. I read an article to the effect that the Amaryllis bulbs should be placed on top of the soil, so I repotted my poor, forlorn specimen. It began to grow right away, and now looks as if, in time, I should have flowers. Again, I received a spotted Calla Lily bulb, and joyously I potted it, and examined it every day for three months, but not a sign of life could I see. I was about to sadly throw the bulb out and put in a Geranium, when I read in my MAGAZINE a lady's experience similar to mine. She waited four months before the bulb began to grow. So I watched another month over my bulbs, and now it is growing nicely. Without the article in the MAGAZINE, I should have thrown it out. Of course, we like to read the grand triumphs and wonderful discoveries of the professional florists.

but amateurs want to hear about the trials and the successes of other amateurs. I killed my most promising Fuchsia, last winter, by putting some rough on rats in the soil. I heard that a pinch of arsenic was good for Fuchsias, and thought rough on rats was the same thing.

SISTER GRACIOUS.

SPRAYING APPARATUS.

The necessity for spraying orchards and vineyards with various liquids for the destruction of fungi and insects is now so

has low wheels, and on the forward part of it is securely mounted a barrel; the force pump is at the rear and on the right side, and central on the frame is the seat of the operator. A pipe leads from the pump to a transverse pipe at the front, to which are attached at both ends the spraying nozzles. These are adjustable, so that any desirable direction is given to the spray. Although we cannot enter into a full description of it, we may say that it is a simple, compact, substantial spraying cart, and well adapted in all



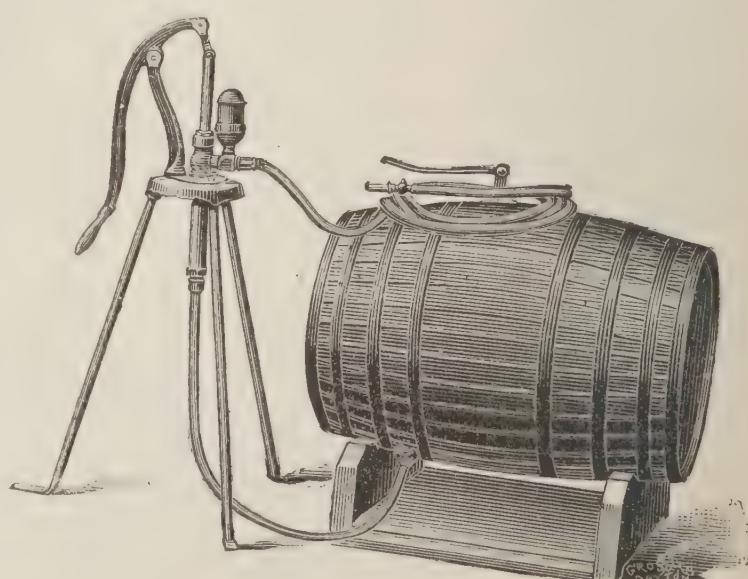
generally recognized that implements and machines for this purpose are coming into common use. It gives us pleasure to give our readers illustrations and brief mention of some spraying machines made by the Nixon Nozzle and Machine Company, of Dayton, Ohio.

This house has, for some years past, been inventing and making spraying pumps and machinery, and have brought their machines and spraying apparatus to a high state of perfection. The Nixon nozzle has an excellent and wide spread reputation, and probably there is nothing superior to it for the purpose.

The Orchard and Vineyard Cart, here illustrated, is of recent invention, and is the result of patient investigation of the wants of a large number of fruit-growers. The cart

its several parts to the uses for which it was designed.

A cut is also given of the pump with barrel and attachments, ready to be



placed in a wagon. For large orchards, where the use of two horses is desirable,

this combination will be most generally employed. Hose, pipes, nozzles and all parts are as complete as they can be made.

HOUSE PLANTS.

It is not always the new and wonderful plants continually introduced that give the greatest satisfaction. They often prove to be a delusion and a snare to the rigorous climate of the north, and our seasons are not long enough oftentimes, if they prove hardy, to flower them satisfactorily, if at all. The same trouble extends to house plants. We are so prone to attempt to cultivate such as we greatly admire, but which our belongings are not adapted to, that we lament our inability to succeed with house plants, and give up in despair.

But this is simply cheating ourselves. Because I cannot have the fortune of an ASTOR, am I to disdain that of a cottager? Every one can raise Geraniums and the Fuchsia, by giving the full sunshine to the former and the shady window to the latter. The Geranium bears considerable neglect, but the Fuchsia must drink freely or die. The Verbena has been successfully raised in the house by some, but it will not thrive in a high temperature, and needs sufficient warmth to insure growth.

Common sense is required as much both in the selection and care of house plants as anything. Often it is best, when ordering house plants, to give the florist an idea of your facilities for growing them, and leave the selection to him. In this way the purchaser will be almost always sure of success.

Window boxes on castors, filled half full of saw-dust, with the pots set in loosely and then filled in with moss, are of great use to the plant lover in a small room, and when the wind chills the plants too much to promote growth upon the window stool. This method keeps the plants in a more uniform temperature than the exposed pots, and admits of careful showering without removal. Also, by placing four narrow strips of wood at each end, a little longer than the plants are high, a rubber waterproof or blanket may be thrown over them nights, and so be made to bloom where no fire is kept through the night. I have kept plants, this winter, this way, and

they are very thrifty. The exposed plants, on the coldest nights, I have tucked into the refrigerator by removing the shelves, and they have repaid me for my care.

This is such a sunless winter we can not expect much of sun-loving plants; but if we nurse them through it they will more than repay us in the spring. I have kept off the insects from my Pelargoniums by devoting a few leisure moments to picking them carefully off, and the little white patches that produce them are carefully removed by a moist sponge dipped in hot water occasionally, and cooled. It serves a double purpose, as it keeps the leaves clean.

MRS. HOSKINS.

REPORT ON EXHIBITS.

The following report was made on the fruits, etc., shown at the last meeting of the Western New York Horticultural Society:

P. Barry shows five dishes of well kept splendid pears, hard to beat.

Ellwanger & Barry a collection of 40 dishes of pears, notable among which are fine samples of the Anjou, Easter Buerre, Josephine de Malines, Winter Nélis, and others. They also show three of Mr. Fox's California seedlings. One, called Barry, is of good size, pyriform in shape, covered with heavy russet. Fox is much like the preceding in size, shape and general appearance. Wilder is a medium sized pear of good quality. The same firm has seven dishes of well kept grapes, a much smaller number than they usually show at this meeting, caused by last year's unfavorable season. They also show a new apple of English origin, called Brownell's Russet. Its quality is good, of fine grain, juicy, and of a pleasant brisk flavor.

A dish of the Champion Quince shows its late ripening and keeping qualities.

E. J. Carr, of West Hampstead, New Hampshire, exhibits a new apple, "Carr's Surprise." It is of a deep red, striped with yellow. The committee finds it to be red in flesh when cut, and of but indifferent quality.

A dish of apples from David Wing, called the Arkansas Black, is showy in appearance and fair in quality.

C. V. B. Wheat & Son, Orleans, N. Y., shows samples of their market grape box, holding three pounds of grapes. It is convenient in size, trim in appearance, and well adapted to the purpose.

A dish of ill shaped, channelled apples are shown, asking for cause of same. On cutting open the samples they are found to be deficient of seed, which may have been caused by late frost preventing perfect fertilization.

Charles Mitzky exhibits a noble pine-apple of the Queen variety, weighing eight pounds. It is a perfect specimen of this king of fruits, and shows one of the possibilities of Southern Florida. He also shows a monster lemon, Florida peas, beans, some miniature Rumquat oranges; also the interesting Luffa *Ægyptica*, or dish-rag gourd.

Samples of excellent evaporated apples are shown by Chapman & Courtney, Brockport, N. Y.

The Star Ventilated Spring Fruit Box Company, of Newark, N. Y., showed samples of their ventilated fruit boxes, which appear to be a vast improvement over older packages, both in appearance, ventilation and perfection of carriage in transit.

C. A. GREEN,
JOHN CHARLTON,
W. A. STILES.

WINDOW PLANTS.

Can you tell me what should be done, if anything, with the English Ivy, of which I inclose a leaf? I judge that the spots on it are of the nature of "bark lice," but do not find any information in regard to them in any book that I have examined. Indeed, the books and magazines seem to forget that amateurs are constantly needing to have the same things said that were uttered last year. Sometime I wish there was a department in your MAGAZINE, excellent as it is, that dealt simply and only with the points that I am asking for—and doubtless others need the same—every day.

I want, for instance, to know what is the best to put into my window garden, a box on the outside of an east window, on the third floor of a city house exposed to the full light and sun, and when the plants should be started? I wonder why my Geraniums and Fuchsia in the inside of the same room, with moderate heat (not furnace), and the morning sun—when there is any—till ten o'clock, grow tall and spindling. I want especially to know if I can grow Pansies in that window garden; I tried it last summer, and the bugs eat the life out of them.

Pardon the series of questions. I am just succumbing to the plant amateur's fever, and you see there is danger of a serious attack. But if you can do anything to help me, I shall be duly grateful, and shall also think that you will be aiding others as needy as myself.

A. M. G., Chicago, Ill.

The English Ivy is quite subject to scale insects, and they will take possession of the plant unless subdued. A room Ivy ought to be trained in a way that it can be removed to some place where it can be syringed or sprinkled at least once a week; beside this there should be occasional sponging of the leaves. With such treatment it can be kept free of insects. But if insects have already lodgment they must be removed by using a small brush—tooth-brush is good—and soap and water, going over all the stems and every leaf.

In that window box can be raised Petunias, Mignonette, Nierembergia, Nolana, Maurandya, Alyssum, German Ivy, Madeira Vine, Othonna, Oxalis floribunda alba and rosea, Tradescantia, Geranium, &c. Much depends on the skill of the cultivator; some could raise Pansies there, some could not.

The Geranium and Fuchsia mentioned have too much heat and not sufficient air. If the room could be more freely

ventilated during the warmest part of the day, allowing the outside air to come in, it would help the plants.

A HANDSOME GIFT.

At the late meeting of the Western New York Horticultural Society, the handsome sum of \$1,000 was donated to it by Mr. GEORGE ELLWANGER, accompanied by the following communication:

ROCHESTER, N. Y., July, 1890.
To the President of the Western New York Horticultural Society:

I donate herewith to the Western New York Horticultural Society the sum of \$1,000 in Rochester City and Brighton Railroad coupon bonds, bearing 6 per cent. interest, to be used as a sinking fund, with the object of encouraging a taste for the planting of fruit and ornamental trees. The interest on this amount shall be offered annually for the following purposes, the subject for competition to alternate every year:

First—for the finest and best maintained private place, with reference to the collection and placing of ornamental trees, shrubs and hardy flowers, and the general treatment and maintenance of the grounds.

Second—for the best, most interesting and properly maintained private collection of large and small fruits.

The first prize shall consist of two-thirds of the interest of the sinking fund, \$40; the second prize of one-third of the interest, \$20.

Competition shall be open only to members of the Western New York Horticultural Society, intending competitors to notify the President in writing, at or before the annual meeting of the Society, of their intention to take part. The awards shall be made by a committee of three members appointed by the president.

GEORGE ELLWANGER.

PERENNIAL PHLOX.

The longer I cultivate flowers the more fully am I convinced that one never makes a mistake in planting perennials. All kinds are desirable, but the Perennial Phlox is especially so. Never, until I grew many varieties of it myself, did I believe they were such charming and "no trouble" plants. The first I ever had outside of the old-fashioned purple variety was a white with a large pink eye. I have known it to be a solid mass of bloom for *three months*, and that, too, in the face of a terrible drouth of protracted length. This led me to become very much interested in them in spite of myself. I gathered together then, by purchase and through the kindness of floral friends, quite a number of them, many named varieties and others unnamed, but equally fine. I have given them the very highest cultivation I knew how, and the result has been to me really astonishing. I have perhaps twenty varieties that have grown to be large

clumps now, and if everything else should fail me I can most surely count upon my Phlox for a grand display in their season of bloom. They are perfectly hardy, but I always protect them somewhat with evergreen boughs or litter of some kind, leaves, etc. I find they grow well in a rich moist soil, and I give them a liberal top dressing of good rotten manure every spring after raking the litter that covers them. They are rapid growers under this treatment, and in two or three years will form very large clumps, from which you may cut hundreds of large trusses of brightest bloom. Among the named varieties I have grown, and can fully commend to flower growers, are: Auguste Riviere, with bright red flowers, a very large head, splendid. Clouded Gem, rose color and white clouded and shaded, as its name would indicate, very fine. Dr. Gilkinet is a deep red with vermillion center and a very large spike, one I would not like to do without, it is so very showy. Richard Wallace, pure white with a colored eye; this one produces the largest floret of any I have, and the truss is unusually large; much to be desired. Prince Christian, bright crimson, and large flower. I have many others unnamed, just as fine, and since I have fallen so deeply in love with the whole family I keep adding to my list of them every spring. It will soon be upon us now, and it is well to be jotting down the plants we must have. Among others, don't forget Perennial Phlox. They grow from seed, but I think must be planted soon after ripening. I frequently find plants in the border from self-sown seed.

M. R. W.

A LITTLE-KNOWN HYDRANGEA.

In the issue of *Garden and Forest* of January 8th the editor describes and figures a Japan variety of Hydrangea, *H. Vestita*, var. *pubescens*, a plant with which the public is yet unacquainted. Specimens of the plant are in the arboretum at Cambridge, Massachusetts, having been raised from seed. The subject is a shrub "four or five feet high, with slender branches covered with red-brown bark." Without giving the description in full we quote further as follows: The cyme of flowers is flat and ample, with numerous neutral-ray flowers an inch or more across when expanded. These open early in

July, and are then creamy white; they gradually change to rose color, and remain quite fresh upon the plants until November. "This plant is perfectly hardy. It is the first of the Hydrangeas to flower, and the most desirable as a garden plant of all the species which are hardy in this climate, with the single exception of the Oak-leaved Hydrangea (*H. quercifolia*) of our South Atlantic States."

The illustration in connection with the above description shows a large cyme of numerous small flowers, and ten large ones scattered over the surface.

The statement above places this new variety and the Oak-leaved species of this country in advance of *H. paniculata grandiflora* as hardy desirable garden plants. Surely this cannot be intended by the writer, but if so he will never find the public to agree with him in that opinion.

FAILURE OF POINSETTIA.

have one Poinsettia pulcherrima and cannot get it to bloom. The flowers drop before opening. A little information would oblige.

V. BOUCHER, *Prov. Q.*

When Poinsettia plants lose their bracts and leaves in autumn and winter it is usually because sufficient attention is not given to the water supply. During the growing season of the plants a liberal supply of water is necessary. The pot should be well drained in the first place, and this is an important point. When cool weather comes care must be taken that too much water be not given, which, when the plant cannot make use of it, remains in the soil and thus turns sour, checking root action, and as a consequence the loss of foliage and bracts ensues. The plants require a rather warm temperature in winter, say from 65° at night to 75° by day, during bright weather. In very cold and dull weather the temperature may be 5° lower. When the plants are fully developed a temperature of 60° to 65° is sufficient.

A NEW GRAPE.

A new variety of Grape, originated at Columbus, Ohio, has been given the name Uller's Mammoth. It is supposed to be a cross between Wilder and Catawba, and is thus described: Berry and bunch very large; color black; fruit ripens with Ca-

tawba, or about a week earlier; quality equal to Concord, or better; vine very vigorous, hardy and productive. This variety is not yet on the market.

POSTAL RATES.

Under this head in our last number we mentioned the desirability of allowing merchandise to pass through the mails at third-class rates, mentioning such to be a half cent a pound. Of course this was not intended, but a half cent an ounce, or eight cents a pound. The writer believes that this would add to the revenue of the department, and it would certainly benefit the public. Newspapers and magazines are now allowed to go through the mails at three cents a pound. This low rate is fixed because it is thought that the periodical literature is an educating power in the community and therefore, for the welfare of the people, should be disseminated as much as possible and at the least expense. The principle is unquestionably a good one. But, following in the same line, the idea cannot be less true of books, which are now charged at the rate of eight cents a pound. This rate should be reduced at least one-half, and books and pamphlets be allowed to go at four cents a pound. The reduction of letter postage from two cents to one is of doubtful expediency, but the changes mentioned above would, without doubt, increase rather than diminish postal revenue.

A GREAT NURSERY.

ELLWANGER & BARRY, of the Mount Hope Nurseries, of this city, have recently issued a "General Catalogue," which combines under one cover all their special catalogues, and in the space of one hundred pages descriptions are given of all the varieties of which their stock is composed. In the introduction they say: "We take especial pleasure in addressing our patrons at this time, for this year we celebrate the 50th anniversary of our nursery. Beginning with a few acres and no capital except industry, perseverance and a determination to succeed, we made progress slowly at first. On two occasions fire destroyed all of our buildings and hail ruined our stock, and so very discouraging was the outlook that we were on the point of giving up the business; but after carefully considering the

matter, we resolved to make another attempt, put forth all our energies, and from that time success crowned our efforts."

The reputation of these nurseries is well known, standing as they do at the head of all other establishments of the kind in this country. Nowhere else can be found so large and complete a stock of fruit and ornamental trees and shrubs and hardy herbaceous plants.

The business has been built up, as the proprietors say, by industry, energy and perseverance, and, we may add, by the most scrupulous care in the propagation of their stock, and fair, honorable and satisfactory dealing with the public. We trust that the vigor of this establishment may be perennial, and that its centennial year may be celebrated under auspices as cheering as the present.

TOBACCO AND FRUIT.

The *California Fruit Grower* says tobacco smoke quickly contaminates delicate fruit of all kinds. A few puffs blown upon a box of raspberries will entirely destroy the delicate flavor of the fruit and render it uneatable. The same may in a degree be said of strawberries. This is something which but few growers and shippers have ever considered, and too much care cannot be taken to prevent the use of tobacco where these fruits are being handled.

THE DETROIT FLOWER SHOW.

The Floral and Musical Charity Festival of Detroit, to be held from the 22d to 25th of April, promises to be something very fine. The people of Detroit are very energetic and enthusiastic about it, and have secured a line of exhibitors including some of the best plant establishments in different parts of the country. It will no doubt be a most enjoyable entertainment, and will attract great numbers of strangers to the place. We wish it the highest success.

HEATHER IN AMERICA.

A very full paper on this subject, communicated by GEORGE LINCOLN GOODALE to *Garden and Forest*, seems to make it probable that the few localities where in this country and Newfoundland the European Heather, *Calluna vulgaris*, has been reported by botanists to have been found, owe their production of the plant to the hand of man, by the scattering of seeds.

WESTERN NEW YORK HORTICULTURAL SOCIETY.

FIRST DAY—MORNING SESSION.

The thirty-fifth annual meeting of this Society was held in Rochester, N. Y., January 22d and 23d. W. C. Barry, vice-president, in the absence of his venerable father, Patrick Barry, presided. The attendance was good, though not as large as usual, a fact accounted for by the prevalence of the influenza epidemic.

A fine collection of fruit occupied the space across the room, immediately in front of the president's desk.

A letter from President Barry was read, in which he feelingly informed the Society that the state of his health compelled his absence, and then continued :

At the last meeting I informed you that inasmuch as we had failed in getting an appropriation from the State to enable us to extend our field of operation, I had made the attempt to create a small permanent fund by individual subscription—some progress has been made in raising this fund—I believe it amounts now to about \$4,000. The trustees of the fund, S. D. Willard and W. C. Barry, will report its exact condition. Only a few gentlemen have been solicited to contribute, and most of them responded in a generous and appreciative spirit. I am in hopes that this fund will reach an amount, the interest of which will enable the Society to offer handsome competitive prizes that will awaken a wide-spread and effective spirit of improvement among the country people in fruit culture and horticulture in Western New York.

Gentlemen, your Society has labored for over thirty years without flagging ; it has done a good work not only in our own State, but its example has been followed in other States with good results — nearly every State in the Union has its horticultural society. You are now in a position to do far more effective work than ever, and it is more needed than ever. You have the active assistance of the experiment stations and of the scientific men who are conducting their experiments.

The extension of rapid railway communication to all parts of our country has created a competition that must be met by increased energy and improved methods. Rapid transit favors us as well as them, and situated as we are, in proximity to the great markets, with our favored soil and climate, we ought to be able to defy competition in nursery, orchard and garden products.

This Society, with its combined wisdom and experience, will, I trust, continue to be a great helper. In union there is strength. We see that nearly every branch of industry has its organization to promote and protect its interests, and certainly no industry needs it more than yours.

The letter closed with a sentence which brought regret to all and which touched a sympathetic chord in every heart. It was as follows :

" And now a word as to the presidency. You have given me this post of honor for a very long period of years. I am no longer able to perform its duties, and lay it down with profound gratitude, and with an affectionate regard for the Society and every individual member."

The reading of this communication was followed by the declaration that so long as Mr. Barry was able to write "Yours truly" he be continued as president of the society.

After the announcement of the various committees, an adjournment was taken till the afternoon.

AFTERNOON SESSION.

Vice-President W. C. Barry called the meeting to order at two o'clock, and the reading of reports was begun.

COMMITTEE ON ENTOMOLOGY.

Mr. C. D. Zimmerman, of Buffalo, contributed a paper on "House Flies." The following statement occurs.

It is estimated that there are 10,000 species of flies in America. The scientific name of the house fly is *Musca domestica*. The house fly really belongs to the barn, the field and the woods. Flies are more numerous than any other insect. They act as scavengers in removing the decayed matter that would be most injurious to health. It only requires a fortnight for a full-fledged fly to mature from an egg. A female fly will lay from eighty to one hundred eggs at a time, and this will show the rapid increase in numbers. The housewife, by careful attention to screens, may keep nearly every fly out of her house.

By invitation of the president, Dr. J. A. Lintner made a few remarks, in which he endorsed the statement made by Mr. Zimmerman, that the prompt removal of manure from the ground will largely prevent the increase of flies.

Mr. C. A. Green asked if house flies were capable of communicating disease, and Dr. Lintner reported that it had been thought, in some instances, that flies have been able to communicate disease, but he did not think there was much danger of that from the common house flies. Some of our flesh-feeding flies which feed on putrid matter might do so, and it had been claimed that diseases had been communicated by them.

Dr. J. A. Lintner, State Entomologist, read the following paper :

LATE EXPERIENCES WITH INSECTS INJURIOUS TO THE ORCHARD AND GARDEN.

GENTLEMEN: You will be glad to know that rapid progress is being made throughout the United States in the study of insects, particularly in that department of the science known as economic entomology, which has specially to do with our insect foes and insect friends, and how they are to be met. A great impetus has been given to the study through the establishment in each one of the States of the Union of an Agricultural Experiment Station, thirty of which, in consideration of the practical importance of investigation relating to insect pests, have enrolled an entomologist among their faculty. Some of these are among our most able entomologists. They have entered with ardor upon their work, and highly valuable results have already been achieved. There is every prospect that within a few years nearly all of our most injurious insects will be brought under control.

The most promising feature in this "new departure" is the opportunity for experiment offered, whereby the value of any possible preventive or remedy may be tested, and any proposed remedy tried under the many modifications acquired by conditions of soil, climate, season, atmosphere, wet or drought, particular vegetation to be protected, &c., &c. This recent large increase in the number of working entomologists, together with the favorable field for research and experiment presented in the farms connected with the stations, has led to the organization during the year of an association known as the "Association of Economic Entomologists." Its title defines its membership. Its effects, essentially, are the insuring of such co-operation among its widely distributed members as shall result in the largest possible aggregate of benefit, through the discussion of best methods of work, the announcement of proposed studies that unnecessary duplication may be avoided, and indication of special lines of desired investigation.

I have not dared to attempt, in the few lines that I have been able to devote to this paper, to give you what I would gladly have done had time permitted, a general summary of what has been accomplished by our entomologists during the past year in their studies of methods of dealing with the insects with which you are specially interested — those of the orchard and garden, which, by the way, embrace by far the larger number of our insect enemies. I can only refer to some of the results obtained through experiment, in several instances elaborately conducted, and mention some of the insect attacks of the year which may be of interest to you.

SPRAYING OPERATIONS.

Judging from present indications, the force pump is destined, for the future, to play a prominent part in our operations against the insects of the orchard and garden—especially those of the former. It has assumed its present importance, from studies made within the last few years in insecticides, in simple methods through improved apparatus for their easy and thorough application, and the results that follow their use. The ease with which the codling moth can be controlled, and apples grown of full size (the elements permitting), of perfect form, rich in color, of highest flavor, and of resistance to early decay, are a sufficient attestation to its value. When we add to this, that by its aid we hope soon to be able to bid defiance to the plum curculio, and control the ravages of almost every insect that feeds upon the foliage of our fruit trees, and of a large number of those that attack the products of our gardens, I feel justified in saying that no orchardist or horticulturist can afford to do without a force-pump. It is costly neglect. Insecticidal spraying, compared with old methods of fighting insects, as pinching by hand or distributing poisons with a sprinkling pot, is as the Gatling gun in comparison with the old flint-lock musket.

The experiments that have been made at the stations show conclusively that in spraying with the arsenical poisons, much stronger mixtures have been used than necessary, and that in no case need they exceed the strength of one pound of the arsenic to two hundred gallons of water. As the foliage of fruit trees has at times been injured to a greater or less extent by the insecticides employed, it is very desirable that the minimum amount of the arsenite should be used that will suffice for its purpose. Experiments for determining this will be a portion of the work for the present year. It would seem that the arsenites are more liable to injure the foliage

when it is more advanced than when it first puts forth. If this shall be established, later sprayings should be of reduced strength.

The different fruit trees show different degrees of susceptibility to the poisons. It appears that the apple and cherry are the least affected, the plum is more susceptible, and the peach the most readily injured. For plum trees, one pound of the arsenite to 250 or 300 gallons of water should be used, while for the peach, a dilution to at least 300 gallons is recommended. It is probable that further experiments will show that while Paris green is preferable for use on one or more of the fruit trees, London purple is less harmful to others.

Different results with reference to injury to the foliage have been obtained through spraying at different hours of the day, and under different atmospheric conditions.

Although there has been some conflicting testimony it would seem that white arsenic may not be used with safety, and certainly not when it has been dissolved, by boiling or otherwise.

SPRAYING WITH WATER.

With merely mentioning, in passing, other principal insecticidal liquids that are employed in spraying, such as kerosene emulsions, alkaline solutions, pyrethrum water, tobacco water—each of which has its special adaptation to certain insect attacks,—I will ask your attention to one that has been brought to our notice within the past year as having proved efficient in arresting the injuries of one of the chief pests of rose growers, the rose slug, *Monostegia rosae* (Harris). We are indebted for it to Mr. L. J. Howard, first assistant of the Entomological division at Washington. I quote a communication recently made by him to *Orchard and Garden*:

"I enjoyed fighting the rose slugs in my garden last summer, particularly as they were so easy to kill. It was an old garden with many varieties of roses. During the early summer there was abundant rain, and I did not bother myself one way or the other, as they bloomed plentifully and looked green. But when a dry spell came, the leaves turned brown at once, and an examination showed them to be covered with slugs of all stages of growth. I sprayed them with a tobacco-soap solution, which killed them at once, but stained all the petals brown at the top. I puffed on pyrethrum mixed with spoiled flour, which also killed them, but pyrethrum is rather expensive. I dusted them with sifted coal-ashes, which also killed them, but it made the bushes look nasty. As the drought continued I brought out my hose, and discovered, to my delight, that a strong stream of water directed on the foliage each evening was the most efficacious and the neatest remedy that I had yet found. During the remainder of the season the bushes were green and beautiful, and free from slugs. This strong stream of water I found was a most admirable thing. It blew the plant lice off my current bushes; it thoroughly discouraged the web-worm on my shade trees; it made the little ants, which build their little mounds on my lawn and in the cracks of my brick walk, tired of life; and, best of all, it broke up the nests and completely disheartened the English sparrows which built in the ivy and over the windows of my house. Where it is available, therefore, pure water, 'without trimmings,' when thrown with a sufficient force, is a good insecticide."

I would heartily indorse the above communication of Mr. Howard. I have every confidence that a rather coarse spray of water thrown with force will serve to rid us of the injuries of many other pests

than those above named. It will be efficient against the little white rose-leaf hopper—probably the *Tettigonia rosæ* of Harris, which, as Mr. Uhler has informed me, belongs to the genus *Anomia*, and is distinct from the *Europern rosæ*. It should also be equally efficient against the several species of small leaf hoppers, *Erythroneura vitis*, and others, that infest the grape vine, particularly if employed against them in their early larval stages. It should be destructive to all of the plant lice that can be directly reached by the spray. The efficiency of rains in arresting attacks of the apple tree aphis and the hop-vine aphis has long been known. If these delicate insects can be knocked from their food plant while their beak is inserted into it, the smallest portion of the tip of the beak left behind them in the plant would prevent further feeding and necessarily prove fatal.

FUNGICIDES AND INSECTICIDES COMBINED.

The multiplication and extension within a few years of plant diseases, which have been ascribed to high culture, large production and extended areas devoted to special crops, have rendered it necessary that these, as well as insect ravages, should enlist the attention of, and be earnestly fought by, the horticulturist. Many of these diseases, among those which are of a fungoid nature, promise to be controlled, if not conquered, by the use of the Bordeaux mixture.* If the fungi and the insects could be simultaneously controlled, it is evident that time, labor and expense would be saved. The advantage resulting from combining London purple with Bordeaux mixture in killing the Colorado potato bug and preventing the potato rot, has been shown in experiments made; and there is every reason to believe that other insects and other fungoid attacks may be similarly treated with great success.

CARBOLIZED PLASTER PREVENTIVE.

Plaster of Paris has frequently been used to prevent insect depredation, but it is doubtful if it would prove of much more benefit when applied to fruit trees than ashes or road dust. From some experiments in protecting plum trees from curculio attack, carbolized plaster, made by combining one pint of crude carbolic acid with fifty pounds of plaster has shown such beneficial results that the method merits additional trials. It may prove a valuable preventive of the depredations of the rose bug, *Macrodactylus subspinosus*, from which, as yet, we know of no satisfactory means of protection.

STUDY OF THE ROSE BUG.

The recent working out of the life-history of this great pest of the fruit grower and florist, by the Entomological Division at Washington, will, it is hoped, when published, aid materially in operations against it; but I have long thought that our best success in combating with it is to be found in the study of its breeding grounds. It is known to be a local insect, appearing suddenly in immense numbers, in particular localities only, and there is, therefore, reason to believe that it has its particular breeding grounds. In one instance, at least, such a source for it has been known and observed for many years. Mrs. Lucy G. Chrisman, of Chrisman, Va., with whom I have exchanged several letters upon the subject, inform me that year after year the rose bugs may be seen coming in myriads from a bush-covered swampy

or marshy soil, of sand that is always wet and which evidently in former years had been a bend in the river, now cut off by a change in the channel. They are annually true to their appointed time of appearance, almost to a day, and true also to their line of flight, which she has kindly mapped out for me, and represents as being in a body about five hundred feet broad, moving up the old river bed the first day as far as a church indicated in her sketch, about a mile from the swamp, and flying quite low. The second day they rise higher in their continued flight, spreading somewhat, and reaching certain points beyond (indicated) in one, two or three days thereafter. I hope, later, to compile from Mrs. Chrisman's letters interesting observations that she has made and gathered from her friends, of the breeding grounds, flight, limitation to sandy soil, feeding and other habits, which she has very kindly given to me.

In the necessarily hurried preparation of my annual report for last year, which was handed in for printing in December last, several of the insect attacks of the year, to which I had given attention, were not mentioned. May I briefly refer to a few of them here? They will be mainly of fruit insects.

COLEOPHORA SP.—A NEW PEAR INSECT.

On June 8, 1888, Mr. P. Barry reported to me that the newly-set pears of the Mount Hope Nurseries had been vigorously attacked by a new enemy, a queer looking form, which was found with one end inserted into the fruit. Examples were subsequently sent, when the depredator was found to be the larva of a small Tineid moth, of the group known as "case-bearers," from the small case which they construct for their covering while in the caterpillar and pupal stages — sometimes cylindrical, sometimes ellipsoidal with a smooth or ridged surface, in others horn-shaped, and, indeed, assuming various forms. The case is never deserted by the larva, but is carried about upon its body, thrusting out its head to feed, and in this instance burying its head and front segments into the fruit, with the case projecting therefrom and appearing as if a bit of a small twig had been stuck into the pear.

Specimens of the fruit submitted showed that the operations of the caterpillar consisted of boring numereus round holes of about the diameter of its body (that of an ordinary pin) to the depth that it could protrude from its case. Withdrawing itself, it would remove a short distance and again burrow into the fruit. Many of these holes had been made in each pear. One of the pears received, of only one-half inch in diameter, showed, by count, forty-four of the borings. The necessary result of such an attack was the destruction of the fruit, it becoming with its growth gnarled and wholly unfit for use.

The detection of this attack is undoubtedly the explanation of many of the scales and unsightly deformations of apples and pears, which, from the entirely different character presented at a later stage of growth, had long been a perplexing mystery to me, not being able to refer it to the operations of any known insect. A month later, July 9, some Duchesse pears, of about an inch and one-fourth in diameter, were received from J. F. Rose, of South Byron, N. Y., which were sent as a sample of his crop, which had been rendered nearly worthless from its scarred and gnarled condition. I recognized the injury as having been caused by the Coleophora. Some of the spots retained their original round form, while others had become elongated, triangular, lozenge-shaped, or of irregular forms, as the result of the growth of the fruit. The margins of the scars were blackened, elevated, and the somewhat enlarged interior con-

*Of the different formulæ for this, perhaps the best is: Six lbs. of sulphate of copper dissolved in 4 gals. of hot water; 4 lbs. of lime dissolved in 4 gals. of cold water; mix and dilute with cold water to 22 gallons.

tained pale-yellowish granulated matter. From twenty to thirty of the scars occurred on each pear, and several of the same character on the stems.

It is quite probable that this Coleophora attack will prove wide-spread and the cause of injury frequently observed, but not hitherto traced to its source from the early period at which it is made. The insect seems to belong to the genus Coleophora. The species has not yet been determined. From the half dozen cases sent me, two of the insects were successfully carried to their perfect stage, and are now in the State collection. The larvæ ceased feeding and fastened their cases on end to the bottom of the box containing them on June 13th. The first moth emerged twelve days thereafter, and the second on July 7th. Should the insect appear in injurious numbers hereafter, it could be destroyed by spraying with an arsenite soon after the setting of the young fruit.

THE PEAR-BLIGHT BEETLE.

The pear-blight beetle, *Xyleborus pyri* (Peck) appeared in great abundance in a peach orchard of Mr. Norman Pomeroy, of Lockport, N. Y., in the spring of 1888, where its operations were so severe that the orchard, consisting of young trees, was nearly ruined by it. The attack had assumed a different character from that usually ascribed to it, for instead of the burrows of the insect running upward or downward in this they were mainly horizontal, and carried around the trunks or limbs of the young nursery stock so as to nearly girdle them and permit of their being easily broken off by hand. All of the trees attacked were killed, and were either pulled up when they were seen to be dying or sawn off below the lowest burrows, which in many cases was near to the ground. These latter, subsequently, made a vigorous and healthy growth. The injuries of this beetle have long been known, but thus far we are without its life-history. Nothing, so far as I know has been published of its early stages. As Mr. Pomeroy, who kindly sent me some of the infested material from Lockport, claims to have seen the insect in its egg and young stages, I extract portions of his letter, containing, also, interesting notes of habit, that they may be compared with observations of others that will be made hereafter.

Writing under date of June 5, 1888, he states: "I find, by close inspection, the eggs as well as the young. By cutting carefully into the burrow, the bottom of the hole is found to be full of eggs and young ones." Under date of June 13th, the following: "When the trees were seen to be dying and I commenced to pull them up [presumably about the middle of May, when inquiry was first made of the insect], the ground beneath was noticed to be covered with sawdust, and examining for the causes I found the trees full of holes. Sitting down and watching the holes, I saw the dust dropping out from them. I only saw one of the beetles out of the holes, and that was walking around on the tree. At the bottom of the holes they have made a side-cut and lined it with a white substance for their young to eat. If you take your knife you will find this side-cut and the eggs, if they have not hatched; if they have, then the young will be there. Professor Lewis of the Union School examined a limb and found the side-cut full of eggs."

"I send a short piece of the body of a tree, that you may see that they like the trunk as well as the limbs.

"The tree blew out, but in a few days the leaves wilted. I carried a couple of the trees to the farmers' meeting at Cambria Center, which was held a day or

two after I found the insects in them." [The meeting was on May 25th.]

I am sorry to have to state that pressing engagements prevented my examination of the infested material sent me, and the opportunity for observing the eggs, if present, and the young, and their feeding habits, was lost. There must, however, have been some error in the observations as reported to me, for instead of the young beetles occurring in association with the eggs, it should have been the larvæ—or grubs, as generally known. Possibly the pupæ may have been mistaken for eggs.

In the latter part of September (26th) there were discovered upon the hearth-tiles of my office, where the bundle of infested branches had been placed at the time of its reception, a number of beetles that had emerged—ten males and ten females, most of which were alive. Cutting into a few of the burrows, some of them disclosed the peculiar white lining above referred to, but no living presence. A few words in reference to this white substance: It was of a yellowish white color, solid, exceeding in thickness that of an ordinary sheet of writing-paper, rather smooth when apparently undisturbed, but quite roughened where it had probably been more or less eaten. In a letter recently received from Miss Ormerod, the accomplished entomologist of the Royal Agricultural Society of England, in mentioning serious ravages on plum trees in England during the past year from *Xyleborus dispar* (probably identical with our *X. pyri*), Schmidberger is quoted as of the opinion that the larvæ of this species feed on a whitish substance in the mother galleries. Miss Ormerod had observed the white lining in the tunnels of *X. dispar*, but it seemed to her to be a mould, such as other observers have thought to have noticed in the galleries of Coleopterous larvæ allied to *dispar*, and on which they apparently fed. The limited observations that I have made lead me to believe that further examination and study will show it to be a special secretion by the female, or the parents, to serve as food for the young, and that it constitutes the only food of the larvæ, living as they do within chambers excavated for them, and not tunneling separate galleries.

At the time above mentioned the burrowed branches were cut in pieces and inclosed in a case, to secure such beetles as might thereafter emerge. On December 18th, following, I took from the case 33 male beetles and 293 female—all dead; December 24th, ten females,—one alive; February 11th, 1889, 18 females—all dead, and the last to emerge. The material is retained for further study of the burrows.

The above recital well illustrates how much there is still to be learned of our common insects, and may also serve as an apology for the entomologist's inability at times to offer remedies to prevent their ravages. This "pear-blight beetle," destructive also at times to the apple, plum and apricot, was described and its operations observed as long ago as the year 1817, and has since been frequently written of; but up to the present it has succeeded in concealing its early stages from us. Still more strangely the male sex of the species had never been recognized or known to science until found by me among the large number of beetles reared from the Lockport pear trees. Another species, *Xyleborus obesus* of Leconte, had been thought by Schwarz and others to be the male of *X. pyri*, but it now proves to be quite distinct. The two sexes differ so markedly that they may readily be separated at a glance without the chance of error. The abdomen of the male is only about one-half so long as that of the female;

its thorax is less rounded and elevated, and the head is prorected (bent downward), at least after death, so as to form quite a curve with the body. Examples of the male have been contributed to the cabinet of our principal Coleopterists, and others will be sent to those who value them.

Since the above was penned, Mr. Pomeroy has written me in reply to inquiries made, that the "young" to which he referred were the young grubs of the beetles. He commenced to find the grubs and the eggs about the first of June. [Probably he did not look for them earlier.] The eggs were quite small, of a whitish color, standing on end side by side to the number of six to eight, in a side chamber. A magnifying glass was used in their discovery. As near as he could determine by the aid of the glass at his command, the grubs were feeding and living on the white substance lining the chambers.

A NEW DEPREDATOR ON QUINCE BLOSSOMS.

From Mr. A. H. Briggs, of Macedon, examples of a species of snapping beetle were received on the 20th of May, 1889, which, during the preceding four years, had been so abundant upon, and injurious to, the blossoms of his quince trees that he had been obliged to go over the trees daily and knock the beetles into a pan of kerosene and water. "From three small bushes frequently a hundred would be taken, and often five or six would be working into the heart of one bud, and apparently fighting one another in their eagerness to effect an entrance. Their attack usually began before the blossom-bud had opened, or immediately thereafter, and continued until it was destroyed." Until the present year, when the insect was less numerous than heretofore, he had been able to save but few buds from its attack. The same insect had made its demonstrations on the trees of Rev. Dr. Jacques, while four years previously residing at Macedon Center, and had been fought by him with Paris green mixed with flour.

My identification of the beetle as *Limonius confusor* (Le Conte), was subsequently confirmed by Dr. Horn; but the injury to the blossoms reported of it was questioned, and further examination asked for. Upon submitting the doubt to Mr. Briggs, answer was returned that there was no possibility of a mistake, as he had often watched their feeding, and that those sent me had been taken by him from the blossoms while eating the petals. Dr. Horn entertained the opinion that many of the Elaters (snapping-beetles) were predaceous in their final winged stage, although vegetarians as larvæ. While he had recorded *Limonius 4-maculatus* from the blossoms of *Æsculus*, he was not aware that they fed on the flowers—possibly on insects within them.

THE PEACH-BARK BORER.

A small bark-boring beetle was received October 19th from David Huntington, of Somerset, Niagara county, N. Y., taken from the bark of a peach tree affected with "the yellows," accompanied with the inquiry of name, if they caused the yellows, and the remedy for their attack. Reply was made that they were a species of the Scolytid bark-borers known as *Phloeotribus liminaris* (Harris). In writing upon it, it has been given the common name of "the elm-bark beetle;" but it has been recently ascertained that it does not infest the elm, but that another form closely resembling it, viz., *Hylesinus opaculus* (Lec.), had been mistaken for it. It is a well known pest of peach trees, and was formerly supposed to be the cause of "the yellows;" but its only connection with it is that it is frequently found in trees that have

become weakened and sickly through the disease. All of these Scolytid bark-borers from their concealment and habits, are difficult to reach and kill, and we know of no satisfactory methods at present of dealing with them. Whenever a tree has become badly infested with them, it should be promptly taken up and burned. I have requested of our State station at Geneva that experiments be made in the application of kerosene to the trunks and limbs of trees, at different seasons of the year, to see if it may be done with safety. If it shall be found that kerosene—one of our most efficient insecticides—may be freely applied without harm to the tree, then I trust that we shall be able to kill the bark-borers in whatever stage they may be occurring within the bark.

This insect seems to be increasing in the State of New York. Some notes upon it, descriptive of its galleries, et cetera, may be found in the "Fourth Report on the Insects of New York, 1888."

THE CHERRY-TREE SLUG.

The cherry-tree slug, *Eriocampa cerasi*, has, during the last year, and for several preceding years, been very prevalent and injurious, at and in the vicinity of West Farms, N. Y. As reported by Mr. James Angus, the foliage has been so riddled by the feeding of the well-known brown, slimy, slug-like larva, that a perfect leaf could with difficulty be found. There is no need of inquiry such as the above, for the larva can be readily destroyed by spraying hellebore in water—an ounce of the powder to two gallons of water—or by dusting the foliage with fresh air-slacked lime.

THE Currant-STEM GIRDLER.

The operations of this insect are recorded in my Fourth Report (page 48) as follows: "A short distance below one of the larger leaves of a tip, five or six sharp, somewhat curved cuts could be seen, encircling the stalk, and from their depth, nearly severing it, causing the tip to fall over and hang suspended by only some small points of attachment." Later the tip breaks off and falls to the ground. The attack, while allied to that of the raspberry-stem girdler, is quite distinct."

I have not been able to find the author of this, apparently, new form of injury. Mr. A. H. Briggs, of Macedon, N. Y., has kindly sent me pieces of currant stems thought to have been girdled by the insect and to contain the larva, but I was unable to find any living form within them.

THE GRAPEVINE FLEA-BEETLE.

An unusual number of inquiries have been received during the spring and summer of the grape-vine flea-beetle, *Graptodera chalybea* (Illig.). Either the conditions have been more favorable for it, or it is becoming a more formidable pest of our grape-growers. Wherever it makes its appearance, effort should be made to destroy the beetles during their hibernation, by burning or removing their ordinary winter quarters, as in the rubbish of the vineyards, or the loose bark of the posts. In the early spring, when they first make their attack on the buds to which they are so destructive, they should be knocked off daily into a pan of water and kerosene, or jarred to the ground and crushed, or a poisonous liquid applied to the buds. The ravages of the larvæ, at a later period, may be controlled by Paris green in water.

Mr. George C. Snow, of Penn Yan, N. Y., has sent me an insect which he detected preying upon the larva by sucking its juices. They were Hemipterous, belonging to the plant-bugs, of which so many are

known to be valuable aids to us in the destruction of our insect foes. As I could not recognize it in its pupal stage in which it was received (June 26th), it was submitted to Mr. Uhler, and was referred by him to the genus *Podisus*, and probably of the species *modestus* (Dallas).

A NEW ROSE PEST.

A destructive borer of the tips of rose bushes has made its appearance at Au Sable Forks, N. Y., during the past summer, which has only been observed in its larval stage, and therefore cannot be named at present. It apparently belongs to the Tenthredenidae, or saw-flies. Its form of injury is to commence at the extreme tip and burrow downward several inches, consuming the entire interior of the stem. Several of the infested tips were sent to me during the month of June, which were inserted in damp sand for maturing the larvæ which they might contain. On June 27th, two had completed their growth and burrowed in the sand, where they have formed cocoons of the general shape of those of the currant-worm, and measuring four-tenths of an inch in length, but it is quite doubtful if they can be carried through to their perfect stage, as hibernating larvæ of the saw-flies are difficult to rear.

The lady sending them has written: "About twenty years ago, my garden roses were infested by this same borer. I fought them with knife and fire for four or five years, and rid myself of them entirely, and had never seen one since until this year. I have not been able to find a fly or a beetle on the bushes uncommon enough to think it the cause. As yet, tea and green-house roses in open ground are exempt."

Mention is made of the above, and of the other attacks, the authors of which are unknown, in the hope that whenever they may come under observation the opportunity will be embraced to give them such study as shall lead to their identification and a knowledge of their entire history, that we may know how to deal with them.

VARIOUS ATTACKS OF FRUIT INSECTS.

Several other attacks have come to my knowledge during the past year, to which there is not time to refer at length, but which deserve to be put on record.

The Apple-tree Bucculatrix.—This, at times, destructive insect, known to science as *Bucculatrix pomifoliella* (Clemens) [see First Report of the Insects of New York, 1882, pp. 157-167], which seems to display a partiality for the orchards of Western and Central New York, attacked the trees of W. J. Strickland, of Albion, Orleans county, N. Y. Twigs infested with the cocoons were sent to me October 25th.

The Apple-leaf Miner.—The larvæ of the apple-leaf miner, *Tischeria malifoliella* (Clemens), actively engaged in running their curious mines within the leaves of apple trees on the grounds of State Botanist Peck at Menands, Albany county, N. Y., were received on September 10th. By holding to the light the little caterpillar was plainly to be seen actively mining within. The blotches made by them appeared of a brick-red color, on the upper side of the leaves.

The Hickory Tussock Caterpillar.—From Pawling, Dutchess county, N. Y., Mr. Ira W. Hoag sent a colony of the young larvæ of the hickory tussock, *Halisidota caryæ* (Harris), taken from a cherry tree. They also occurred on several of his apple and pear trees. From a small pear tree "nearly a pint" (many hundreds at their then small size) was taken. When disturbed, they dropped by a thread and hung

suspended. Shaken upon a sheet their quickness of motion made them difficult to kill. (They could easily have been destroyed by shaking on a sheet wet with kerosene.) This insect has not been recorded as a pest of fruit trees, having usually been confined to forest and shade trees, as walnut, butternut, elm and ash.

The Oblique-banded Leaf-roller.—Serious injury was inflicted in a pear-block at Seneca Falls, N. Y., during the month of May, to certain varieties of pears, by a small caterpillar eating into and destroying the buds, and, later, by spinning together and feeding on the young leaves. It had prevailed for a few years preceding. The larvæ sent to me were those of the Tortricid moths, and apparently that of *Caccæcia rosaceana*, but I was not successful in obtaining the moth for positive identification. This species—"the oblique-band leaf-roller"—is a common pest of our fruit trees, roses, strawberry, and a number of other trees, shrubs and plants. The remedy for it would be spraying with an arsenical liquid at its earliest attack upon the buds, before concealed among the leaves.

The Eye-spotted Bud Moth.—Pieces of the new growth of plum trees were sent, June 14th, from the nurseries of T. C. Maxwell & Bros., at Geneva, burrowed into by a small caterpillar, which is believed to be that of *Tmetocera ocellana* (Schiff.), although the larvæ may not properly be described as cylindrical, its head being but about one-third the diameter of the body, and the central segments the broadest. In two of the tips examined the larva had burrowed just at the commencement of the new growth upward for about a half inch, and in another at the extreme tip from the terminal leaves downward for more than an inch. The lower burrows were filled with gum—the upper one with rounded pellets of excrementa.

The V-shaped Tortrix.—Young pears, into which large holes had been eaten, even extending into the seeds, and in some of the examples embracing nearly one-half of the pear, were received, together with the caterpillar feeding upon them, June 13th, from Mr. P. Barry, of Rochester. The caterpillar changed to a pupa within the leaves of the pear, and on June 25th gave out the moth, which proved to be *Caccæcia argyrospila* (Walker)—the *Tortrix furvana* of some authors, and the *T. V-signata* of Packard, whence we have the common name above given. It is reported as having been bred from rose, apple, hickory, oak, maple, elm and cherry. It has not been recorded previously from the pear.

A New Enemy of the Currant Worm.—A large plant-bug was discovered by Mr. Samuel G. Love, of Jamestown, N. Y., with its beak inserted into currant worms, *Nematus ventricosus*, sucking out their juices, and killing numbers of them. When received by me, they were in their pupal form. They were fed on currant worms until they transformed to the perfect stage, permitting of their identification as *Podisus cynicus* (Say.), after which they were released to feed at large, in the hope that their progeny through coming years would inherit a special fondness for the food of their ancestors, and thus aid in the work of bringing under control that annoying garden pest, the introduction of which into this country from its native home in Europe, it is said, is chargeable upon a prominent member of the Western New York Horticultural Society. But this was in the infancy of your Society, and we trust that since then—during a term of years exceeding the average length of human life—you have accomplished sufficient good to atone, over and over

again, for the commission of so great an evil—innocently done. Enterprise often leads to danger and harm.

Mr. W. C. Barry asked the doctor to repeat what he had said in reference to the apple insect—the “Bucculatrix.”

Dr. Lintner said the insect was gradually extending eastward, but had not yet reached the Eastern States. It is not a difficult insect to control, the remedy being spraying at the time when the insect comes out from its cocoon, and the larva is easily killed by the application of a weak arsenical solution. There is no necessity for its existence and spreading.

Mr. J. A. Root of Skaneateles, asked the difference between London purple and Paris green, and what London purple is a product of?

Dr. Lintner replied that Paris green contains a larger amount of arsenic (about twenty per cent.) than London purple. Experiments have yet to be made to show that some trees will bear London purple better than Paris green; and injury has been done by using the solution at too great a strength.

Mr. W. C. Barry suggested that the results of experience with spraying would be acceptable and interesting. Some had made mistakes, and had used too much of the solution, with the result that trees had suffered to a considerable extent.

Mr. S. D. Willard said that after listening to the remarks of Prof. A. J. Cook, last year, in regard to the use of London purple, he was led, during the past season, to try that insecticide. The professor led some of them to believe it was quite safe to use it, and he (Mr. Willard) accordingly had a druggist prepare quite a large quantity of London purple. Accidentally, one small orchard was treated to a dose of about four ounces of London purple to fifty gallons of water. Its ill effects were first noticed upon some pear trees, the foliage, inside of two days, being burned. The danger of its application to the plums was anticipated. The orchard was robbed of all its foliage while the trees were loaded with a heavy crop of fruit, from which the speaker expected 2,500 baskets, but picked only 1,000. The foliage all dropped before the fruit matured, a large portion of the fruit also dropping to the ground. London purple must be used with great care. It dissolves in water so as to be seen without difficulty. But there was a very great difference in the strength of London purple as sold by druggists; and if the genuine article be obtained, he was satisfied that two ounces of London purple to 100 gallons of water was all that was necessary on the foliage of plum trees. The application was made twice on most of his trees. He would recommend the use of Paris green. The damage did not stop at the destruction of the crop, and if the winter had been one of ordinary severity his opinion was that the trees would have been killed.

Mr. Root used one pound of London purple to 200 gallons of water, making two applications, without any perceptible effect on the trees; and he was led to believe the material was of an inferior grade.

Mr. Willard saw the ill effects by the burning of the foliage; and within a week after its application on potatoes, his men declared it to be worse than Paris green.

Dr. Lintner said the instance related by the last speaker was the only one of the kind that had ever come to his knowledge. In his own experiments they commenced with one pound to 100 gallons of water, and found, in some instances, that was too much. They then used one pound to 150 gallons, and

they had not yet learned of any serious damage by the use of 2 pounds to 100 gallons. He thought Mr. Willard's druggist might have made a mistake. It had been thought that spraying during the past season had been more uncertain owing to the changes in the atmosphere.

In reply to the inquiry “of what is London purple composed?” Dr. Lintner replied that it was the waste product of analine dyes, and contained about 43 per cent. of arsenic, while Paris green contained about 48 per cent. He had no confidence in one pound of London purple to 800 gallons of water. The codlin moth would laugh at it. One pound to 500 gallons gave no satisfactory results. But in spraying pear trees a weaker solution must be used than for the apple. He advised one pound to 300 gallons for pear trees; and if the London purple be of pure quality and put up properly that will be found sufficient. One pound to 200 gallons was also used on plum trees with marked success.

Mr. H. G. Chapin applied Paris green on apple trees, using twelve ounces to 200 gallons of water; and if stirred thoroughly and constantly it would not injure the foliage. He used two ounces to a barrel of water.

Dr. Lintner—Do you find it prevents the codlin moth?

Mr. Chapin—Yes.

Dr. Lintner—This is very important information, and I think we shall come to the use of one pound to 200 gallons.

Mr. Chapin said he had sprayed his orchard for about twelve years and with success. He had also used it on pear trees.

Mr. Barry stated that Mr. Chapin's orchard comprised 130 acres of Baldwin apples.

Mr. Rupert experimented on plum trees with London purple, and it did not appear to make any difference. They shed leaves whether sprayed or not.

Mr. Willard said the best crop of plums raised in his section was upon trees that were not sprayed at all, and the quality was fine. He did not absolutely lay the cause of foliage dropping to the use of London purple,—there was a disease.

Mr. C. M. Hooker had sprayed his plum orchard for a number of years, using one pound to 200 gallons, without any ill effects. They went over the trees twice. The secret was to keep the mixture well stirred.

Mr. Root said the plum blight prevailed, and the falling of leaves must be attributed to some other cause than spraying.

Mr. Barry endorsed this, and said the result of this discussion was to admonish growers to exercise extreme caution in the use of both London purple and Paris green, and also to be sure and purchase the articles from those dealers who sold the right kind of goods.

Mr. M. F. Varney asked how to destroy the flat-headed apple tree borer.

Dr. Lintner reported that it need not be a pest. Prevent the deposit of the eggs by painting the trunks of trees with soap and carbolic acid. Even then it would be necessary to go over the orchard and see if any eggs were deposited. If so, cut out the spots and kill the larvæ. The apple tree aphis eggs are laid in the autumn, and can be killed by the kerosene emulsion; so also can the hop vine and plum tree aphis. Replying to an enquiry as to how to treat the black aphis that attacks cherries, the doctor said they should commence early with the cold-water cure, before the leaves were curled to any great extent. Later, a thorough spraying with kerosene emulsion would kill it. Kerosene was one of

the best insecticides they had. The doctor then asked Mr. Chapin if he had entirely satisfied himself that spraying with twelve ounces was thoroughly successful in killing the codlin moth, and if he had conducted the experiments for longer than one year. If so, he could use one pound to 260 gallons.

Mr. Chapin was thoroughly satisfied that a solution of that strength was just as satisfactory as a stronger one would be. He bought his in New York and it was strictly pure. Owing to the size of the orchard they usually made only one application, although they sometimes repeated on a part of it.

Mr. Varney said it must be done when the blossoms are not on the trees, as there was danger of poisoning the honey.

COMMITTEE ON NOMINATIONS.

The report of this committee was adopted, as follows:

President—Patrick Barry, of Rochester.

Vice Presidents—S. D. Willard, Geneva; W. C. Barry, Rochester; W. Brown Smith, Syracuse; J. S. Woodward, Lockport.

Secretary and Treasurer—John Hall, Rochester.

Executive Committee—C. M. Hooker, Lewis Chase, Rochester; B. W. Clark, Lockport; C. W. Stuart, Newark; Nelson Bogue, Batavia.

REPORT FROM ERIE COUNTY.

Mr. M. F. Varney, North Collins, presented a report: The hard freeze of May last was very disastrous to fruit and early garden produce. Strawberries were only half a crop, and sold for seven and eight cents per quart. There was a growing demand for the Wilson in the Buffalo market, but what was needed was a berry combining the firmness and color of the Wilson, as prolific as the Crescent, and strength of stems to hold the fruit above ground. Black Caps were about half a crop, and sold for seven cents, the canning factories using hardly any. There was only a two-third crop of Currants, but all these had to be harvested in a week's time, and this resulted in a glut of the market, many crops, as a result, being rendered unsalable. Fine stock sold for four cents and upwards. Red Raspberries yielded about a one-third crop of early varieties, and sold for eight cents per pint, while the late varieties yielded nearly a full crop, and brought six to seven cents throughout the season. Grapes were more generally ruined than any other fruit, the injury to the vine being so severe as to render the prospect for the coming year very poor—not over two-thirds of a crop. Pears gave about a two-third crop. Apples set well, but severe frosts ruined the prospects.

PAPER OF MR. LEWIS H. ALLEN.

Mr George Ellwanger read an extremely interesting paper, written by Mr. L. F. Allen, of Buffalo, a former active member of the Western New York Horticultural Society, and now ninety years old. The paper was rich in its historical allusions, and no less so in its pomological information—a pomological historical review of the earlier portion of the present century.

GENESEE COUNTY REPORT.

Mr. Irving D. Cook, South Byron, read the report, from which we make extracts: "Previous to the frosts of May 28th and 29th, the outlook was favorable for a partial crop of many of the leading varieties of fall and winter fruit; but few apples, however, were gathered in the county, and those were generally small, knotty, irregular in shape and very inferior. The pear crop proved fully up to the average in standards, and many orchards of dwarfs gave

profitable returns. In reference to the cultivation of dwarf pears, particularly of the Duchess variety, evidence seems to be accumulating that success depends on the altitude at which the orchard is located, together with a northwest exposure. Peaches, at best, are an uncertain crop to grow in Genesee county. Grapes were almost entirely ruined. Cherries gave a small crop, and Strawberries were not an average yield. Raspberries, as usual, gave abundant returns."

MONROE COUNTY.

Mr. C. M. Hooker read the following report:

Very few enjoy telling the story of their losses and disappointments, and we certainly do not take any pleasure in reporting the failures of the fruit crop in Monroe county in the year 1889, and shall make it as brief as possible. Misery is said to love company, but the thought that nearly all our neighboring counties fared no better does not afford us much relief, and although we always ought to rejoice in the success of others, we fear it will be just a little bit aggravating when we come to hear from our friends from Ontario county report the splendid crops of plums and quinces with which they were blessed, and what high prices they received for them. Well, we sincerely congratulate them upon their good fortune, and trust that another year we may share success with them.

The season of 1889 opened favorably. Trees and plants came through the winter in fine order, and generally blossomed well, with the exception of plums, many of the blossoms of this fruit being winter-killed, probably from having started to grow during mild weather in the previous winter and being killed by subsequent cold. Up to the 29th of May all went well, and the prospect was good for large crops of nearly all kinds of fruit. Then came the remarkably hard frost of that date, almost unprecedented in severity at that late season, and in one night our fruit-growers saw the anticipated profits of the year swept away from them. The apples were about the size of peas at that time, and trees well loaded with the young fruit, most of which fell to the ground in a few days, and the rest was so badly injured as to be of very little value thereafter. It is doubtful if there was a single barrel of first-class apples grown in Monroe county last year. Pears fared somewhat better, but probably one-half the crop was destroyed, and the rest was injured more or less. It was observed that many of the pears turned black at the core, and were much checked in their growth, yet finally made passable fruit, though far from what they would have been without this injury. Peaches, plums, cherries and quinces were all very much injured. The grape crop was nearly all destroyed, the new growth of a foot or more being killed. The crop of small fruits was shortened at least one-half. The blossoms of the raspberry and blackberry were not open generally at the time of the frost, and it was hoped that they had escaped injury, but such was only partially the case. The damage by this frost was quite general throughout the county, yet some places, particularly in cases near the lake, suffered less than others. Such is the sad story of the loss to our county by one night's frost, and it impresses us with the thought of how dependent we are upon the elements for success in fruit culture.

The rest of the summer was remarkable for heavy and frequent rains and severe hail storms, the latter, in many cases, destroying what little fruit the frost had left, and causing great injury to some of our

nurseries and fruit farms. Constant rains and warm weather promoted a vigorous growth of vegetation, very favorable for the pear blight, and we were not surprised to see it much more destructive than for years before. Even Saunders' remedy proved a failure the past season, where stable manure had been freely applied for the two seasons previous. Plum trees grew finely for a time, but lost their foliage from the excessive wet early in the season. The price of fruit has, of course, been good under these circumstances, but we have had little to sell, and all good winter apples have been brought to Rochester from abroad.

Planting of fruit trees is going on with us about as usual, we think. The peach appears just now to be attracting the most attention, having again proved profitable here. Let us not be discouraged by one bad year. We must expect them occasionally, and they come, perhaps, more frequently than we are apt to figure on when estimating the profits of fruit culture; yet the past has proven that the average profit is satisfactory, provided the business is properly conducted. Let us, then, take new courage from that fact, do our part faithfully in the care of our orchards, and hope that the balance will be on the right side the coming season.

ONTARIO COUNTY.

Mr. C. H. Darrow read the Ontario county report. He said that fruit growing was becoming the leading industry of the county. The farmers, unable to compete with the West in grain and cattle raising, were now turning their attention to fruit growing, and were increasing their orchard acreage. They were not confining themselves to any one fruit, but were cultivating all kinds. Last year's apple crop was about 35 per cent. of the usual crop, and the quality was inferior on account of the heavy rains during the season. Good prices were obtained for the apples. The pear growers had found it profitable to spray the trees with London purple or Paris green. Great progress in plum culture in Ontario county was being made. He commended the work of the experimental station at Geneva, and said that it would pay the Society to aid this institution in its work.

LIVINGSTON COUNTY.

Mr. John F. White, of Mount Morris, prefaced his report by stating that only a few years since he had no desire to attend these annual meetings of the Society, but that now he felt he could not afford to miss them. Peach trees and strawberry vines were in full bloom on the 8th of May, but the memorable frosts of May 28 and 29 blighted both their hopes and fruit. A peculiarity of the frost was that in spots it was severe, while in other places in the same field no damage was done. Strawberries yielded a light crop, obtaining 10 and 12½ cents per quart. Raspberries were a fair crop. Peaches and apples were generally destroyed. The vicinity of Mount Morris was an exception, where 2,000 bushels of peaches and as many apples were raised, though of poor quality.

SENECA COUNTY

was represented by Mr. E. C. Pierson, of Waterloo, who made a verbal report for the northern part of the county. The frosts affected them disastrously along the Central railroad, more particularly Waterloo and Seneca Falls. There was neither apples nor plums; the pear crop was a comparative success; small fruits, except strawberries, good; and the northern edge of the county had a crop of peaches.

Mr. J. F. Hunt, of Romulus, made a brief statement regarding his part of the county. The prospects were that Seneca county was destined to be one

of the great fruit counties of the State. About six hundred acres of grapes had been planted within a few years. They had two as large vineyards as could be found in the State—150 and 200 acres respectively. There was only a small crop of grapes—only a few acres in bearing, though they did well and good prices were obtained. Vineyards three miles from the lake escaped the frost with but little damage. Further south, vineyards half a mile back were injured by the frost. He was in the peach orchard of Smith & Son, near Lodi, from which they estimated they would gather about 3,000 bushels. The variety was the Brigdon, which resembled the Crawford, but is more productive, and the peaches averaged nearer of one size. He believed the peach originated with Mr. Smith.

Mr. Willard thought the Garfield and the Brigdon were the same.

Mr. Hunt saw also a new plum, called the Newark, which ripened about August 10th, and was very productive, as much so as the Lombard, and which sold at a high price.

Mr. Smith (Geneva) said the Brigdon peach originated near Auburn. It was a little earlier than Early Crawford, although belonging to the same family, but he thought it superior to that variety in quality. He had one thousand trees. The orchard referred to by Mr. Hunt had been planted about seven years. There were too many peaches on the trees.

Mr. Barry regarded it important that, in an off-year like the past, fruit growers should make note of those varieties which succeed in unfavorable seasons, and when others fail.

Mr. Younglove, of Hammondsport, reported for Steuben county. He spoke very discouragingly of the slip-shod manner in which their orchards were cared for, the borer and codlin moth being left to themselves, with the result that little fruit was grown that was fit for city markets. With proper care apples could be raised in Steuben county that would be fit for any market. Pears do well, but are raised in only a small way; but there were some fine peach orchards along the lake. The grape was their specialty, and the acres covered with them could be counted by the thousands. Lake Keuka had over sixty miles of shore line, which is almost entirely covered with vineyards. The Concord is grown more than any other one, and is not likely to be supplanted by any new variety yet introduced. Iona and Isabella have almost disappeared. The Catawba and Delaware are still widely grown for both market and wine purposes. He believed Western New York was only in its infancy in grape culture. The recent crop had been short, 7,500 tons being about the entire yield for 1889.

EVENING SESSION—WEDNESDAY.

When Mr. Barry called the meeting to order, he took occasion to urge upon the older members the importance of getting the young men interested in the Society. He then introduced Mr. William McLellan, superintendent of the Buffalo parks, who read a paper entitled "The Embellishment of Public Pleasure Grounds."

This paper will be given in full in our next issue.

THE NEWER STRAWBERRIES AS TESTED AT THE EXPERIMENT STATION.

Mr. C. E. Hunn next read a paper on

the above subject, a portion of which is here presented.

On the trial grounds of the Experiment Station at Geneva, there has been fruited, the past season, eighty named varieties of strawberries, many of them older kinds. With those you are all familiar, and they are of value only as they excel the newer ones in varied soils. Unfortunately, at the present time, we are able to test the strawberry in but one soil, a clay loam, which is to be regretted, as it is well known that it is of all fruits the most sensitive to its surroundings, and demands just the proper conditions to develop its maximum vigor. It is planned to so arrange our test grounds that we will have clay, loam and gravelly soils in conjunction, and be able to give the public a better knowledge of what varieties to plant on different soils. Our trial grounds lie to the south, with a spruce hedge on the north and east, and protected on the west, to a certain extent, by the Station buildings, making it early, but by using judgment in the removal of the winter mulch the blooming season can usually be retarded until danger of an early May frost is past. We fortunately escaped the heavy frost of May 29th, 1889, that destroyed the greater part of the strawberry crop of this section, and at fruiting time the entire patch gave promise of an enormous crop, and the novelties looked as though each and every one was striving to out do its neighbor; but, also, the rains came and kept coming, rotting those that were to be noted for their firmness, making tasteless those advertised as being the quintessence of flavor, and in many ways making life a burden to one supposed to give an accurate description of each and every one.

We plant for testing two rows of each variety, one grown in the stool system, the other allowed to mat to the width of two feet, twelve plants in each row, the rows three feet apart.

Our experience in past years has been the largest individual fruits from the plants in stool rows; and the largest yield of marketable fruit from the matted rows. Last year the matted rows gave both the largest yield and the largest berries, and in addition bloomed and fruited from three to five days in advance of the stool rows.

Of the newer introductions tested by the Station, I will speak from one year's experience only.

Belmont (P.)—A failure this year; fruit glossy crimson, late, firm, quality No. 1.

Bubach (Imp.)—A very vigorous variety, free from rust; very productive of large, bright scarlet, fruit soft, quality No. 1.

Burt's Seedling (P.)—This is claimed to be identical with Captain Jack. A good late yielder, and berries held good size until last picking; I should say will take the place of Wilson in this section; firm. Quality No. 2.

Bomba (P.)—Of vigorous growth; a great yielder of large fruits; color very dark red, rather too dull when fully ripe; does well either in stool or matted row; season long; meat of berry high color, distinctly veined; a showy luncheon berry when not ripe. Quality No. 2.

Carmichael (Imp.)—Of weak growth; did not give any results this year.

Cardinal (Bi.)—Of weak growth; foliage affected with rust; fruits all small, glossy red, firm; good shipper. Quality No. 2.

Crawford (P.)—A very vigorous variety, productive of conical, dark, showy, scarlet berries of large size; firm. Quality No. 1. I consider this an acquisition.

Dawley (P.)—Growth of vines, foliage and fruits identical with Sharpless. Late fruit seemed a trifle more symmetrical. Not enough improvement to be of extra value.

Daisy (Imp.)—Of rank growth with many runners; an abundant bearer; fruits conical, deep glossy scarlet; firm. Quality No. 2. A good berry, not of the largest but all good size, and hold above the average through long wet season. I think this will take the place of Crescent in many sections.

Excelsior (Imp.)—Growth weak but free from rust; makes runners freely; fruits medium size, soft and mealy. Quality No. 2.

Enhance (Bi.)—A vigorous grower; very productive; fruits showy; held large through picking; late, firm. Quality No. 1.

Farnsworth (P.)—Vigorous grower, makes runners freely; dark green foliage; season medium; productive; color of fruits almost too light for market, resembles in that respect May King, soft but of the finest flavor. A berry that has come to stay. I consider it one of the best for private gardens.

Hampden (P.)—This looked well in the early season, set a large crop of fruits, but frequent showers caused fruits to rot even before fully ripe, and the leaves rusted badly in advance of almost any other variety.

Garden (Imp.)—Of vigorous growth; rusts slightly; fruits good flavor of the few that ripened; season seemed too wet for it.

Gold (Imp.)—Growth vigorous but very moderate yield; fruits light scarlet, firm; flavor very fine.

Hoffman's Seedling—Of vigorous growth, makes runners freely; foliage light green, free from rust; early and prolific; fruits bright red, showy, usually large, firm, subacid. Quality No. 2; good shipper and keeper.

Haverland (Imp.)—A vine of distinct leafage, very light green; a strong grower, multiplies by runners very rapidly; abundant bearer of very attractive fruits borne in immense clusters; berries all large with long neck, soft. Quality No. 2. I consider this a very promising variety.

Iganhoe (P.)—Of vigorous growth, free from rust; prolific; fruits showy, scarlet, from large to very large, firm. Quality No. 1.

Jessie (Imp.)—A vigorous grower, makes runners freely; early; produced a few very large fruits of attractive appearance, but failed to come anywhere near what is claimed for it. I must say I was grievously disappointed in this variety.

Lida (Imp.)—Of stocky growth; enormous bearer both in stool and matted row. I think I never saw as fine a show of fruits as on two rows of this and two of Louise. They excited the wonder of all who chanced to see them; but they both failed at the critical time and became very soft after showers at the time they were ripe.

Auger's No. 70 (Imp.)—I believe this has been named Middlefield. A pistillate berry of rank growth and making numerous runners. Season medium; very productive; glossy scarlet, very showy; market variety of good shape, conic; berries hold large through season; firm. Quality of the best, one of the good ones of recent introduction.

Miami (Imp.)—Of medium growth; rusts slightly; very productive; late; fruits very showy, dark scarlet, average large, soft. Quality No. 1.

Warfield No. 2 (Imp.)—Of poor growth and not productive this year. I hope it will do better later. Fruits extra large. Fine, good shipper.

It is often said that the strawberry sells more by its appearance than from its quality; but I find a growing demand for berries of fine flavor, and buyers are

asking what are your best-flavored varieties, not one which yields the most. Which leads me to think that the public are slowly discovering that there are strawberries and strawberries.

I should recommend the following as a good choice for market and kitchen garden:

For Market.—Hoffman, Haverland, early; Daisy, Burt's Seedling, medium; Bubach and Crawford, late.

For Kitchen Garden.—Bomba and Haverland, early; Ivanhoe, medium; Farnsworth and Middlefield, late.

Mr. Willard emphasized the value of the Experiment Station to the interest of horticulture.

Mr. C. A. Green said the same varieties of strawberries planted in different sections gave different results. No fruit in the world would vary as the strawberry, and there was no one variety that would do for the country at large.

Mr. John G. Glen asked what the opinion at the Experiment Station was of the tests of new strawberries as compared with old varieties, such as the Sharpless and Cumberland Triumph, for the home garden.

Mr. Hunn replied that he knew of no strawberry among the new varieties that they preferred to the Sharpless. They regarded some of the old ones just as good, or better, than the new.

QUESTIONS.

Which, according to the latest experience, is the most profitable to plant, the Standard or Dwarf Pear?

Mr. Nelson Bogue, Batavia, thought take it acre for acre, that Dwarf Pears had been the most profitable in Genesee county. William Page, of Bethany, had a $4\frac{1}{2}$ acre orchard of Dwarf Duchesse that in 1888 produced 441 barrels of first-class fruit. The seconds were sold for a total of \$75. The labor bestowed was: Eleven men picked in a day and a half; five men sorted and packed in five days; two men with teams hauled to the station. The crop brought \$4.50 per barrel, or \$1,906.

Mr. Smith asked if it did not depend very much upon the soil.

Mr. Bogue—Yes; dwarfs should be planted on heavy soil, well cultivated and manured. The Duchesse leads all other varieties with us.

Mr. Willard—Dwarf Pear orchards have paid more clean money than Standards. If well cared for trees will last a man's lifetime. Growers had inclined too much toward the Duchesse. The Howell was quite as productive, and the Kieffer one of the best he had.

Mr. Green thought the Standard Pear the kind to raise as a general thing.

Mr. Smith said that on a strong loam Dwarfs would give better results than Standards; but on a gravelly soil he would prefer Standards. The majority of our well-known varieties were improved by working on the quince stock in planting on clay ground.

Mr. C. M. Hooker was entirely in favor of Dwarfs. Whilst the Duchesse was a regular bearer, it was liable to blight.

Mr. Willard affirmed that there was more money in growing pears, Dwarfs or Standards, than in raising a grain crop. Canning factories were increasing, and a great many pears were wanted; and when cold storage houses were constructed as they should be, so that stock can be held back till the glut is off the market, people will begin to appreciate the fact.

Prof. Bailey thought much depended on the location. He knew an orchard that was planted too high. If the best attention be given the orchard, the tops kept where they ought to be, and good culture and cultivation given, the Dwarf Pear was the thing.

Mr. W. C. Barry said one point in connection with the cultivation of the Dwarf Pear that ought to have consideration was the small space it occupied. They ought to have branches down to the ground. The returns from them come quick. It was surprising that growers did not raise more Dwarfs. He considered the opinion that the Dwarf Pear was short-lived an erroneous one. If properly planted it was long-lived. The Kieffer, in many places, was of no value, whilst in some others it did well and sold well on the market. He strongly recommended the Anjou, which he considered a most valuable variety, and, when properly ripened, it was one of the finest pears. An orchard of them was a pretty sight in October, when the fruit was coloring and the specimens uniform in size and perfect in every way.

Mr. Hooker said the reason growers generally condemned the Anjou was because of its being subject to blight. Mr. Moody had an orchard largely planted with them that had entirely died out from blight. Aside from the objection stated, it was a magnificent variety and worthy of extensive planting.

Mr. Hoag had Anjou, but never saw one blighted.

Mr. Smith was surprised to learn that it was more subject to blight than any other. He did not remember to have seen in the last ten years a blighted Anjou. His only objection to it was its short stem and consequent liability to blow off.

Mr. Barry thought the high price obtained for it compensated for its blowing off. It was the perfection of fruit.

Is the Mulberry a desirable fruit to cultivate for the garden or for market purposes in this locality?

Mr. Hooker had fruited the Downing, but not for market. It made a very pretty tree, and the fruit was pleasant.

Mr. Willard did not consider it a profitable crop for market, still it was desirable to plant either the Downing or New American.

Mr. Smith thought it profitable for the birds, as it saved the cherries. A bird will leave the cherry for the Mulberry. He had one tree that produced ten bushels.

Mr. Barry was surprised it was not more generally grown. It was a very eatable fruit and quite desirable.

To what extent has the spraying of orchards been successful? Has the spraying of other fruits than the apple been attended with good results—the pear, plum, cherry, etc.?

Prof. Baily supposed all were agreed that spraying apple and pear trees had been attended with success. Said he: "It has ordinarily been supposed that the adult curculio does not eat. Some beetles never eat, and the curculio has been classed with those insects. Hence it has been said that there is no use in spraying stone fruits, as the insect does not get the poison. Experiments have proved, beyond peradventure, that the mature curculio does eat; it eats the foliage of plums and cherries, and also of the snowball, rose leaves and flowers. So that we must dismiss the notion that to kill curculio we must get the arsenic into the crescent marks. We cannot expect to kill as many curculio as codlin moth with the same number of applications. We do find that by spraying two or three times upon stone fruit we can destroy a large proportion of the curculio. If we can destroy 90 per cent. of codlin moth, we can destroy 70 per cent. of curculio. It has been the opinion until a year ago that London purple was the best thing to apply. Prof. Cook's experiments have shown the past year that London purple is liable to injure the foliage of stone fruit trees. There is a

good deal of danger in using it on peach trees, and Prof. Cook advises not to use it.

Mr. Smith recommended the spreading of salt under the trees early in the spring, as soon as frost was out, and they would have no trouble.

Mr. Hoag said that he never sprayed his orchard, and he was willing to compare his fruit with that of his neighbors at any time.

Mr. Barry—" You must have an exceptionally fine orchard?"

Mr. Hoag—" No, I have not; I do not see how a man is going to tell whether spraying is successful or not unless he leaves a part of his orchard unsprayed and compares the fruit when it is harvested."

Mr. Barry said that the fruit growers had been driven to spray their orchards because of the ravages of the worm, and they would like to know how members had practiced it, and with what results.

Mr. Chapin said in 1879 he had an orchard of fifteen acres and a neighbor had one of two acres immediately adjoining. The trees had been planted at the same time, and everything was alike in each case. That year he sprayed his orchard thoroughly, and had a good crop. There was not one apple in a hundred wormy, whilst in the other case there was not one in a hundred but was wormy.

Mr. Hooker said experiments had demonstrated that careful spraying did good. They had used London purple and Paris green on their plum orchards, one pound to 200 gallons of water, and it had been partially effectual against the curculio. He had seen sad results from the use of London purple. It must be used with care.

Mr. B. J. Case, Sodus, said that in buying apples to evaporate, in Ontario county, a man who had sprayed his fruit would only sell him the culls; but when he came upon a man who had not sprayed, he had no difficulty in buying the whole orchard.

Prof. Bailey said that tests at the Experiment Station proved that there was great advantage in spraying. They had tried it upon a whole orchard at one time, and, as compared with orchards adjacent, the results were most marked. In regard to spraying some trees and not others, he did not believe it always the most satisfactory; but when they had sprayed the whole orchard the results were marvelous.

THURSDAY—MORNING SESSION.

The session was called to order at 9:30 by Mr. S. D. Willard, and the question box was first given attention.

Is the climatic condition of Western New York becoming unfavorable for the growth of the apple? Two almost entire failures in five years.

Mr. Hooker thought not. There were more insects, but the climate was just as good. They never had finer apples nor larger crops than in 1887 and 1888.

Is there any advantage in taking rough bark from apple trees; if so, when should it be done?

Mr. Rupert had practiced it more or less, and thought it a good plan, as by so doing a great many insects were destroyed, or, at least, that which produced them. He advised a good washing with strong soap suds after taking off the bark.

Mr. Hooker said that it destroyed the hiding place of the codlin moth, but otherwise it was injurious.

Mr. Root had tried it thoroughly, but regarded it as a useless expense.

Are zinc trays poisonous to evaporated apples?

Mr. Hooker said where pans were used there was a poisonous matter formed—sulphate of zinc, he thought; but in the ordinary use of wire trays,

which soon became coated with the juice of the fruit, there was no injurious effect.

Mr. Root thought where proper care was taken to remove the apples there was no danger.

What is there new in experiences in the prevention or destruction of the pear scab? Is there a remedy?

Mr. Willard asked what was meant by the pear scab? and Mr. C. E. Cook said it applied to scab on the fruit.

Mr. Root said that good cultivation, good rich ground and proper thinning of the trees would do a great deal towards it.

"But," said Mr. Cook, "it won't do it."

Prof. Bailey stated that the scab on the fruit of the apple and pear was caused by fungus, for which they had no complete remedy. He would recommend the use of from half an ounce to one ounce of hyposulphite of soda in ten gallons of water, applied in spray when spraying for codlin moth. Experiments at the station were beginning to show that they may obtain something definite.

Mr. I. D. Cook said the Duchesse was less affected on high ground, and Mr. Ansley's experience had been that the scab was prevalent on low ground, and that the fruit raised on high ground was clear and bright.

In planting an orchard of one thousand plum trees for profit, what varieties would you recommend, and how many of each variety?

Mr. Ansley would plant Lombard, and nothing else.

Mr. Willard did not like to put all his eggs in one basket. He would plant not only Lombard, but Hudson River Purple, Egg, French Damson, Prince of Wales, and for a yellow plum, Peter's Yellow Gage, which was, all things considered, one of the most superior of yellow plums for market or family use ever sent out. If a favored location was possessed, he would also add Reine Claude.

Mr. Dunn, Webster, asked what kind of soil the Lombard wanted.

Mr. Ansley said if high, a rich ground, warm and dry.

Mr. Willard thought they would do well on clay.

Mr. Hunn asked if any member had noticed Reine Claude drop its leaves the past year. It did not with him.

Mr. Willard said of those varieties that held their leaves, with one slight dose of London purple, was the Copper, and also Reine Claude in close proximity; but it was the worse of the two.

Mr. I. T. Chase said the only kinds that held leaves well was Union Purple and Hudson River Purple.

Which is the best and most rapid growing evergreen for a wind-break for orchards?

Many members expressed themselves, the majority favoring Norway Spruce, whilst others favored both the Scotch and Austrian Pine.

Are Western New York orchardists in danger of being overcome by the production and competition of the Western States?

Prof. Bailey said "No." He had noticed the reports regarding the exportation of apples, and he found everywhere the general statement that apples shipped from States west of New York did not export as well as those of the last-named State and eastward. Western fruit was not as high colored, and cost too much to transport.

Mr. Hubbard asked for reports on the best fertilizers for vineyards, and this brought out the question, "Has anyone had experience with Canada hard-wood ashes?"

Mr. Willard had; he thought them very valuable,

and knew of nothing better; but care must be exercised to obtain those of good quality.

Mr. C. M. Hooker said the most valuable and marked effects on their place from artificial fertilizer was the use of nitrate of soda on raspberry plantations, in quantities of 200 pounds to the acre. If the plants were in growing condition the results of one application could be seen all through the season.

Mr. Bronson had used fertilizer upon young growing trees for several years—nitrate of soda and some form of potash, mixed with a quantity of dry, warm muck. The season makes a difference in the use of fertilizers. If a drouth prevails there will be almost no effect from it; but with the usual amount of rain the effect would be seen. In applying it they took the length of the row of trees selected, estimated the quantity needed, and instructed the men to apply the amount allotted to that row, and the results were good.

Mr. Willard said they were all grossly ignorant of the quality of the chemical manures they bought. He had found considerable plaster in the muriate he bought.

Mr. Root considered this and similar experiences a strong argument in favor of the establishment of a laboratory in connection with the Experiment Station; but all efforts to this end had been opposed by manufacturers of fertilizers.

Prof. Caldwell advised that they buy the materials and make their own fertilizers. Better goods would be obtained by purchasing nitrate of soda and super-phosphates of a certain guaranteed strength, and muriate of potash or sulphate of potash, than by buying the doubtful phosphates now in the market. Simply getting the fertilizer and putting it all over the ground did not enable them to tell whether or not it paid. It must be applied only on parts.

Mr. Bronson applied barnyard manure to one-half block to the amount of twenty-five loads per acre, and on another half block nitrate of soda, say 200 pounds, sulphate or muriate of potash 400 pounds, to 1,000 pounds muck, in quantities of 200 to 300 pounds per acre. In the end the results were about even, but the cost was in favor of the fertilizer.

How should the quince be pruned to obtain the greatest amount of fruit?

Mr. Hubbard had noticed that Mr. Maxwell trimmed the new growth back about one-half. Mr. Willard said that was his plan; and another member pruned his as little as possible, but gave the trees plenty of room, say sixteen feet apart.

Mr. Hooker had visited Mr. Maxwell's orchard, and was surprised and interested to learn that he had a system of summer pruning, by pinching in after a growth of about a foot. At that time it was the most magnificent sight he ever saw.

What is the best method for keeping out borers from apple, plum and quince trees?

Mr. I. T. Chase recommended a solution of soft soap, applied with an old broom or brush, from the limbs to the ground, two or three times during the summer.

Mr. Brown suggested a mixture of whale-oil soap and carbolic acid, in quantity of one pound of soap to an ounce of acid, dissolved in four or five gallons of water. Clean out the borer first, and then apply the liquid around the collar with a whitewash brush twice during the season. He used it in June.

Mr. Varney said white wash and carbolic acid did a good job for him.

Is it advisable to take farm crops from land in a young orchard, and if so to what extent, and how long?

Mr. Hooker said that it took about twenty years to bring an apple orchard into a good, profitable condition, and if a man waited that length of time without any farm-crop between the trees it would be expensive. Some of the best cultivators in Geneva gave up the ground altogether. His own practice had been to raise farm crops or small crops, and to advantage; and in that way it did not cost much to get an orchard into fair condition. They had good crops.

Mr. Varney had noticed one orchard where the owner had been in the habit of cutting from one to two tons of hay, and had also good crops of fruit.

Mr. Hooker would not have it understood that he recommended growing grass. He meant cultivated crops.

What acid cherries can be grown profitably in this locality?

Mr. Willard said Montmorency was one of the best, and English Morello was a very good one. Early Richmond is a good producer, but a little too early. Montmorency is better in quality, and will usually pick from two to three weeks in succession before getting too ripe, and will carry to market in good condition. Cherries do well on a high, dry soil, and are better without manure than with.

Mr. Barry considered Montmorency a particularly good variety for canning, looking beautiful when put up.

Is the Worden Grape likely to supersede the Concord?

Mr. Hubbard said the Worden was being largely planted, and was preferable to Concord because of earliness, extending the season about a week. It was not quite as good a shipper, and it would not supersede the Concord,—is only earlier.

Has Fay's Prolific Currant fulfilled expectations?

Mr. Bronson thought it was going to prove a good bearer and shipper, but from what he had seen of it it did not come fully up to expectations either as to quality or size.

Mr. Willard acquiesced.

What is the latest experience with the Kieffer Pear?

Mr. Arnold had four hundred bushels last year from two hundred and fifty to three hundred trees. They sold for one dollar per bushel, just as they came from the trees. In comparison he mentioned that he planted ten acres of potatoes and dug only ten bushels.

Mr. Green thought the Kieffer growing in popularity.

What new fruits have been tested the past year and found to possess special merit?

Mr. Hooker mentioned a pear, which Mr. Moore named Bar-Sec,—a combination of the first syllable of two well-known varieties. It came after Bartlett, and was melting in character. Moore's Ruby Currant was new to many, but old with his firm. It had maintained its character the past year, and was more productive than Fay's, and, while not as strong a grower, was a better currant to eat.

Mr. Rupert had raised the Longfield Apple for six or seven years, and found it very fine; and at that day (Jan. 23) was still keeping. It is a Russian, the only one of the importation of 1869 and 1870, and was having a good run. Of another variety, the Arkansas, he had a sample on exhibition. He obtained a few scions from Arkansas. It was an excellent grower, similar to the Wine Sap, but larger. He had also a pear, Vermont Beauty, which he had fruited four years; found it on Grand Isle in Lake Champlain. He bought the tree, and should probably

send out stock another year. It was of the best quality; came after the Seckel, but was larger, kept till near the middle of November, and was a fine bearer.

Mr. Willard said it was as handsome a pear as he ever saw.

Mr. Bronson inquired about the new varieties of plums. He spoke of the Chickasaw or Japan varieties, which went through last season when almost all other varieties dropped their leaves; and asked, "Will they take the place of varieties such as Reine Claude, Bradshaw, &c."

Mr. Willard had tried Kelsey's Japan Plum, and he pronounced it worthless. Of the Bhotan there were several varieties, differing in period of ripening. There were two varieties that were good, and he had planted one hundred and forty trees, and top-worked a good many trees during the summer. The leaves seem never to be injured; trees productive, quality very good. The color was a sort of crimson, and flesh yellow; and he was of opinion that he should get something valuable out of this class of fruit. He did not think the Weaver Plum worth a cent. *Prunus Simoni* had fruited, but he did not like it. It might, perhaps, sell well on account of appearance.

Mr. Green said the Wilder Early Pear was of fine quality.

Mr. Barry spoke of the Bassett Plum as being highly recommended. The fruit was about the same size as a cherry, and he could not understand the motive for introducing such a variety as that.

In reply to an inquiry concerning the Fitzwater Pear, Mr. Willard said it was a splendid variety,—one of the very superior varieties sent to him last fall. He could recommend it to any one wishing a good pear.

Mr. P. C. Reynolds indorsed this opinion.

Following a vote of thanks to the exhibitors of the very superior variety and quality of fruit exhibited at the meeting, Mr. Barry called attention to the long-keeping varieties of pears, such as the Fox and others, seedlings of Winter Nélis. The Barry and the Wilder were the two best, for in March and April, when cut, the fruit would be found to be buttery and of rich flavor.

EVENING SESSION.

The discussion of questions was resumed:

What is the latest experience with Washington, El Dorado, Pocklington, Prentiss, Niagara, Victor, Empire, Hayes, Jessica, Diamond, Ulster, Vergennes, Woodruff, Wyoming, Jefferson, Eaton, Moyer, Geneva, Mills, Green Mountain?

Moyer.—Mr. Green referred to this as a Canadian grape, a promising variety, earlier than the Delaware, and could be sold for that variety. It was of good quality, very productive, and a healthy vine, its greatest defect being an imperfect cluster.

Mr. Hubbard said it was early, and of good quality, small clusters, and not inclined to fertilize very well. The clusters were too small and too imperfect to be good for market. He had seen it growing in three different localities. It was a week earlier than Delaware.

Lady Washington.—The general opinion seemed to be that whilst the clusters were magnificent, it was altogether too late.

Mills.—With Ellwanger & Barry this variety had done well, proving remarkable on their grounds. It was large, handsome and unequalled, although it might yet develop some weak points.

El Dorado.—Mr. Arnold had fruited it for several

years, but it was not productive and the clusters were not perfect.

Pocklington.—Mr. Arnold said it had done as much good as any white grape he had; it bore well, carried to market well, and, with one exception, always brought good prices.

Mr. Varney stated that it is impossible to get enough of this variety for the Buffalo market. It sold as well as Niagara.

Prentiss.—Mr. Arnold said of the first twelve vines he planted eleven proved to be Isabella, for which he was thankful.

Mr. Snow had better success with it the past year than ever before. It bore nice clusters, was of good quality, but he would not recommend it for vineyard purposes; was delicate, small berry, and close clusters.

Downing.—Mr. Arnold planted one vine four years ago last spring. It fruited last year, yielding fine clusters; was large, but did not get hardly ripe before frosts. His vine was injured by the frosts last May, and the clusters were of secondary setting. Thought it would be a good grape.

Mr. Green considered it a wonderful grape, almost as large as a cherry, but he feared it would be too late.

Niagara.—Mr. Snow had fruited this for six years, and did not know of any faults. He thought, however, that it required more care in starting than most vines; the fruit was of good quality, and sold well. It was a good one for vineyardists to grow for profit. His place was near the lake. After getting well-rooted it was a strong grower. He had not seen any more, nor as much, disease as on other varieties. During the past year it was affected, as were other grapes, with rot and mildew.

Mr. Van Dusen said in propagating the Grape Company got ten to twenty per cent., as they grade them, and that was a high standard.

Mr. Varney affirmed that sixty to seventy per cent. of those propagated by his neighbors grew last season.

Early Victor.—Mr. Green considered this a good grape, its defects being a small cluster and small berry.

Frances B. Hayes.—With Mr. Arnold this was a shy bearer, with straggling clusters, but of good quality. It was not a strong, but fine medium grower, and the foliage a little inclined to be rusty.

Eaton.—Mr. Green said this was a remarkable grape in many respects, bearing wonderful clusters. It was a trifle later than Concord.

Mr. Hubbard had nothing new to report. The grape had not been out long enough to fruit largely, but he had an acre that would fruit the coming season. From all he could judge, he thought it would make a good market variety.

Jessica.—Mr. Hubbard spoke of this as a good early grape for amateur culture; grows pretty well, and bears well, but is small.

Moore's Diamond.—Mr. Green regarded this as a promising grape; fine quality, handsome clusters, productive, and with something of the Iona flavor.

Mr. Snow had two vines, but did not consider it worth a place in the vineyard for money.

Mr. Hubbard saw the Diamond at Bluff Point last season. It was very healthy, bore good clusters, a good-sized berry, ripening about with Concord, perhaps a little before. The foliage was healthy, more so than the Catawba, and it was earlier than almost anything else in the vineyard. One lot of two-year vines was growing in the weeds, with two rows of Niagara and Empire State near by, and the foliage of the Diamond was the healthiest.

Mr. Hooker said the Diamond first fruited on their place, and was very promising. The foliage was always healthy, the vine a vigorous grower, strong-leaved and productive, ripening before Concord, Niagara, Empire State or Pocklington. The bunch was large-sized and handsome, and the fruit of good quality, superior, he thought, to the varieties above named.

Ulster Prolific.—Mr. Green said it was a good grape.

Mr. Hubbard did not believe it would succeed universally as other kinds, but was a good bearer in localities where it did well. At Vine Valley it had done well with Mr. Williams. The clusters were fine, the skin thick, and he thought it would be a good keeper.

Mr. Arnold said it did not keep as well as Vergennes. The skin was thicker, it was productive, ripened well, and of good quality. He liked it, but it was not profitable in his locality.

Vergennes.—Mr. Arnold was well-pleased with Vergennes. It is productive, a good keeper and shipper, and, in markets where known, sells well; it needs to be known well to bring good prices. Last spring he had in one test vineyard two rows of Agawam, two of Vergennes, one of Lindley, one of Merrimac, and two of Brighton. The frost of May 29 played sad havoc, but the white tops of the Vergennes shoots stood right up, hardly touched; the Brighton was in similar condition, apparently uninjured, even on the tender ends; but not so the other varieties beside them. The Vergennes bore a good crop in spite of the frost; so, also, did the Brighton. The other varieties had but few.

Woodruff.—Mr. Willard fruited it for three seasons, and said it was one of the most hardy vines, always perfecting its wood thoroughly, setting fruit well. The bunch was remarkably fine, and, although it was a grape of low quality, it would nevertheless sell well because of its fine appearance. Its productiveness and hardiness could not be questioned, and he thought it ripened a week in advance of Concord.

Mr. Green had fruited it for three or four years, and did not think he had any place for it. It was later than Concord, and poor, with clusters not remarkably large, although of fine color. It was very disappointing.

Mr. Barry formed an unfavorable opinion of it when he first saw it, and threw it out.

Mr. Hubbard formed the same opinion early. He saw it at Ann Arbor, and thought then it would not prove productive; but now had a better opinion of it. Though of poor quality it had a bright red, attractive color, and would sell. He was in favor of growing grapes that people called for and are willing to pay for.

Mr. Barry remarked that many grapes had been introduced and put on the market on the strength of their good quality, but, unfortunately, were lacking in growth and other points. A grape of good quality, hardy and vigorous, is desirable.

Wyoming.—Mr. Varney could speak a good word for this grape, on sandy loam. It is a strong grower, healthy, early, and has a fair-sized berry for an early red,—larger than Delaware. He planted one thousand vines last spring.

Mr. Hubbard said it was being grown on Seneca Lake and the Hudson by the acre. It ripened early, was handsome, gave a satisfactory crop, and was rather popular.

Mr. Fairchild stated that it was being marketed as "Delaware" for market.

Jefferson.—Mr. Arnold had no place for it, as it was too tender, too late and altogether too uncertain, and dropped its foliage badly.

Geneva.—Mr. Willard saw fifteen or twenty vines last year, and was wonderfully impressed with it, both because it held its foliage well and set a large amount of beautiful clusters. In color it was greenish-white, of good quality, and he considered it a very promising new grape. Mr. Moore was the originator.

Mr. Hooker remarked that the Geneva was another grape that fruited for the first time on their grounds. They had fruited it for several years before it was removed by Mr. Moore. On their soil it proved rather late, but was a heavy bearer and fine looking.

Green Mountain.—Mr. Hubbard saw this variety fruiting at the Experimental grounds at Geneva last season. It ripened about with Moore's Early and Jessica; had good-sized clusters; rather medium berry; pretty well shouldered, and bore a fair crop. This was the observation of only one season, but he was favorably impressed with it.

Winchell.—Mr. Barry had one, which they considered about one of the earliest white grapes there was. It was a pure native, very early,—about with Moore's Early; of good quality, nice clusters, strong grower, healthy, and as good foliage as Concord. The fruit was medium, larger than Delaware, bunch slightly shouldered, and about as long as Dutchess.

The discussion on grapes was followed by one raised by Dr. Van Dusen on the importance of establishing a uniform package for the shipment of grapes.

Mr. Fairchild, of Hammondsport, spoke in regard to the annoyance to the grape growers from the fact that no standard in the size of grape baskets had been established. He thought that the legislature should be petitioned to establish a standard. It was desirable to have the smaller size as near five pounds as possible and the larger size about nine pounds.

Mr. Pere suggested the formation of a fruit packing association in Western New York. The association could have a stamp and stamp its baskets of grapes. This would give their products a standing in the market. Mr. Pere moved the appointment of a committee of seven to consider the feasibility of establishing such an association.

The opinion prevailed that the plan was impracticable, although the importance of sending out well matured fruit and honest packages was advocated; but no action was taken by the Society.

MISSOURI FRUIT GROW.

The secretary of the Missouri State Horticultural Society received reports from all the counties of the State up to the 1st of February. In most of the counties the Peach buds are reported injured, some reporting all killed, others from twenty-five to seventy-five per cent. dead. Only two counties report Peaches all right, or with a possible loss of five percent. Some counties also report damage to the Pears, and especially Kieffer and LeConte. Some report Red Raspberries and Blackberries killed. Apples, Cherries and Plums are generally reported sound, and with a promise of a good crop.

WORMS IN VIOLET ROOTS.

In referring to Professor COMSTOCK's paper on the Clematis disease, read before the Western New York Horticultural Society, BYRON D. HALSTEAD, of the New Jersey Experiment Station, informs the readers of *Garden and Forest* that he has found the root-worms—nematodes—in the roots of Violets. "I have visited a number of Violet growers, all of whom had the sick plants, and in every case the worms have been found in the roots. Other growers have been reached through the mail, with a request to examine the roots of any sick plants.

"It therefore seems clear that to the Clematis, as determined by Professor COMSTOCK, and the Peach, Orange, and a long list of other cultivated plants, as worked out or reported upon by Dr. NEAL, of the Florida Experiment Station, and Professor GEORGE F. ATKINSON, of the Alabama Experiment Station, the cultivated Violet must be added as a plant liable to attacks from these eel-worms."

POPULAR BOTANY.

The observations of F. F. L. D., on a "Popular Botany," in this number, page 77, are quite to the point. The suggestion is well made that the perfection of minute illustration at the present time seems to be the most potent factor in the possibility of such a work. Good and appropriate engravings, and plenty of them, would, no doubt, be of great assistance in the identification of plants. Especially would this be true if the engravings were carefully employed systematically to illustrate the descriptions and mark the differences as noted in the text. But engravings occupy space, and the use of them freely in any comprehensive work on systematic botany would make a text-book too cumbersome for ordinary use. This difficulty might be obviated by the preparation of manuals

of local floras, and this, in time, will no doubt be done. The practical adaptation of this method has already been made in a *work issued in Paris, on the flora surrounding Paris within a radius of sixty miles. The authors are GASTON BONNIER and GEORGES DE LAYENS. This flora is a portion of a work crowned by the Academy of Sciences. The illustrations relate especially to the distinctions of the orders, genera and species, and are made with great exactness to indicate the points of difference. The method employed in this work could be applied to State floras in this country, and if well done by competent authors, would be the means of greatly popularizing one of the most interesting of the natural sciences. There is a great work yet to be performed by botanists in the preparation of such local manuals.

* NOUVELLE FLORE pour la détermination facile des plantes sans mots techniques avec 2145 figures inédites, représentant toutes les espèces vasculaires des environs de Paris, dans un rayon de 100 kilomètres. Par GASTON BONNIER, Professeur de botanique à la Faculté des Sciences de Paris et GEORGES DE LAYENS, lauréat de L'Institut (Académie des Sciences). Paris, Librairie Classique et Administrative, PAUL DUPONT, Editeur, 41 Rue Jean-Jacques Rousseau (Hôtel des Fermes).

INQUIRY FOR AID.

If any one has succeeded in house culture of the Bouvardia through continuous years, I am sure there are many who would be very grateful for a minute detail of treatment.

Can some one tell me how I can rid myself of an insect which infests the soil of my house plants. I cannot accurately describe it. It rises like white dust, skipping upon the surface of water poured upon the soil. Long soaking brings myriads of almost invisible mites. No plant thrives where they are numerous. They are always present when my seedlings damp off; are a serious obstacle to the growth of choice cuttings and to Begonia and Bouvardia culture. F. F. L. D.



OUR YOUNG PEOPLE.

HEROIC TREATMENT.

Such a squall as rang through the silent house at five o'clock in the morning was a startling surprise to the sleepers. It was a combination of shrill sounds, accompanied by a brisk tattoo of young feet dancing up and down in the middle of the floor.

When the occupants of different rooms were gathered in the doorway to learn if there were burglars or a fire on hand, the explanation that followed developed only this :

There was measles in the family, and Harry having been unwell the previous day, Mrs. Page directed her husband at bed time, to take him to their own room and lay him beside his sister, Elsie, who was then well recovered from an attack of the disease.

Waking early in the dimly lighted room, and finding himself in new quarters, the novelty of the situation, as well as the consciousness of fever and headache, kept the boy awake.

He was a great big, sturdy fellow, with a mischief-brewing head. He teased and tormented everything around him, outdoors and in. Every creature in the vicinity, whether cow, cat, pig or fowl, fled away at very sight of him. This was to his great discredit, as all wise people can plainly read such signs. His little sister had been teased so much that she was ready to squeal if he came near her, and to cry if he touched her.

Her missing dolls were found surmounting sweepers and umbrella handles, tied fast, their cunning bonnets reversed and their dainty costumes all awry. Her white kitty, Snowball, had daily reason to regret that tails were in fashion for cats, so many pulls and jerks did that member receive, and when there was a squall from kitty there was another one from Elsie, so that mamma had a squally time.

When once a friend of his sister Nellie's had come to spend an evening and had brought her younger sister, with her kitty, to see Elsie, the two girls, with

their pets in their arms, had besought mamma to not let Harry pull their tails. So Harry was told that the first time he pulled a kitty's tail he should go straight to bed. He disliked to go to bed early, so he waited until his craving for the usual entertainment exceeded his aversion to going to bed, and then gave the tail of his sister's cat a fearful "yank," and took to his heels through the hall and up stairs, where he laughed himself asleep, while both the girls below were in tears, and the older ones vexed and disgusted.

The correction he received next morning, from his father, though very disagreeable, failed to make him feel that he could have afforded to loose his "fun" of the night before.

But on this particular morning his mood is changed. He will not tell his mother of his fever and headache, because of his horror of the dosing that may possibly follow. So he lies very still, thinking of a recent schoolmate who had died of the measles, and who was not afraid to die. This boy had charged the doctor to tell him truly if he could not live. When, at last, this had been done, he joined together the hands of his parents, who had lived unhappily together, and won from them a promise to live more harmoniously thereafter.

As for himself, Harry felt that he should be very much afraid to die. He had not been a good boy. He had done many naughty things. Only yesterday, he had taken the bon-bons from Elsie's little drawer and eaten them. That was about the naughtiest thing, he thought, that he had ever done—it was so sneaking, and next thing to stealing outright—much worse than teasing. They were not allowed to ever disturb each other's private treasures no more than if they were strangers to one another, and now, what had he done. He felt that his head was aching harder every minute. The harder it ached the naughtier he felt.

Elsie would be sure to go for her bon-

bons as soon as she was up. What an awful fuss she would make upon finding them missing. How it would make his head ache. "Oh, dear!" he sighed, "I wish I hadn't done it." Elsie was sleeping soundly. It often took much talking and shaking to wake her. He'd see if he couldn't make mamma hear without disturbing her. So, in a loud whisper, he said:

"Mamma, mamma! won't you put some bon-bons in Elsie's drawer?" No answer.

"Mamma! please!—won't—you—put—some—bon-bons—in—Elsie's—drawer?"

There was magic enough in these particular words from that particular boy to have wakened a stone Elsie. But this Elsie was not stone. She was fleshly and flexible, and suddenly very wide awake from her topmost curl to her tingling toes.

With a sharp outcry, that made Harry jump all over, she landed on the floor, stamping her feet and crying out, on a high key, in tones of mingled screech and snarl:

"There—now! Harry's went and eat up my bon-bons—took 'em out of my drawer, too. He's the *worlest* boy! he's always —," but here the grip of a pair of strong arms checked her, and her papa exclaimed:

"What in the world is all this rumpus about? Hush, instantly. You've been dreaming, child. Look at the door; you've raised everybody in the house, this early in the morning."

Harry had buried his head under the covers with the first outcry, but could not shut out the storm he had raised. He vividly recalled what his mother had often said about his ruining his sister's disposition, and now he was afraid he had done it, sure enough. Would she always screech like that, he wondered, when he vexed her. How terrible it would be. She was naturally cunning and bright, pretty, too—a nice little girl when not mistreated. Now what if he should die after having spoiled her so.

There was nothing he could do at the last, he thought, to help atone for his badness; his parents always got along beautifully together—no chance there. Oh, dear; oh, dear; what could he do to make up for the past? And now his head seemed bursting with pain; he was hotter every moment, almost suffocated,

too. "Oh, dear," he sighed, "I wonder how this fuss will end. I hate bon-bons. If I get well, I'll never eat another. I'll give all I can get to Elsie. Hope she won't always scream like that. Crackey, how it did hurt my head."

These reflections flashed swiftly through Harry's mind as he furtively half listened to Elsie trying to prove that she had not been dreaming. Then the covers were lifted and papa's vexed face appeared. But the severe correction about to be given—first in verbal form, then corporal—was delayed at the sight of the crimson face and swollen, blood-shot eyes. "Are you sick?" he asked, "Mamma, come here."

"Yes, papa, I b'lieve I am. Anyway, I'm sorry I went to Elsie's drawer. Tell her she may have my gold dollar to buy a whole lot of candies with."

Mrs. Page was thankful to hear repentant words with generous proof of their sincerity, but was too immediately anxious about his condition to make comment thereon.

It must suffice to say that, though Harry became a very sick boy, with the watchful, tender care always near him, day and night, he recovered in due time. When once able to return to his usual habits, he realized, as never before, the joy and freedom of perfect health. His resolve to cease teasing Elsie and tormenting her cat, he did not forget. But she had formed such a habit of feeling herself abused that her tears flowed at the least provocation. Harry knew how to make her cry simply by looking steadily at her in a certain way, and yet the child could really tell nothing he had done.

In other directions he gave full play to his bent, which seemed to grow with his growth, until Nelly declared him a perfect nuisance, while the girls in the kitchen regarded him with terror. He could not be made to realize that what *annoys others is not fun*, but is a senseless heartless method of wasting time on the part of the actor.

During the visit of a great-aunt in the family—a woman well versed in the ways of children—there were many turbulent incidents which convinced her that Harry was the one disturbing element in the household. One of the least of these occurred at table. Elsie had cried as

loud as she dare in the presence of a guest, and when questioned by her mother, replied:

"Harry won't div me no more water, 'tuse he says it yuns out of my eyes as fast as I dwink it."

"Well, don't it?" he whispered, "just look at it now."

"Harry," said his father, "you may ask to be excused from table."

"Please excuse me, mamma?" he asked, and quietly went out in the yard, where he rolled and laughed on the grass. "I couldn't help saying it," he reasoned, "when I'd once thought of it. I'm sure 'twas nothing very bad to make such a fuss about;" though he well knew that the "fuss" was about his withholding water from Elsie and making her cry.

A few days later the new colored cook, recently from Virginia, where she had been a house slave, was found one morning on the floor of the kitchen, with her head on a chair, groaning, and crying:

"O, Lawd o' mussey, is I hab to die, fer suah?" On being questioned, she reluctantly answered:

"O, Lawd! I done swallered a toof wid my braikfas'. W'en Harry wur passin' the do', gwine to school, I axes 'im would it hu't me? He say 'No, unless it done got stuck in my gizza'd,' an' that's jis' whah it done got stuck now, fer suah. I kain feel it thah dis minyut. An' he say dat de dream book tells it be a mighty bad sign to swaller a toof. O, Lawd o' mussey, I is gwine go daid, suah."

The poor woman was actually so weak with fright as to be unable to stand when lifted to her feet, and so was placed on a lounge.

The great aunt, being also a Virginian, had from the first been an oracle with the cook in all things. So she was immediately summoned, and soon dispelled the poor creature's fears, and convinced her that she had no such organ as the one in question, but that she was merely the victim of one of Harry's jokes. Assured and mollified by such authority, she soon recovered her activity and resumed her usual duties.

Harry, when questioned about the affair before the household tribunal, could only say, in self defence, that if the old woman hadn't acted so chicken-hearted, he never could have thought to say what

he did—didn't suppose she was so ignorant as to take it to heart, etc.

What could be done with such a boy? Complaints were coming from his teacher, and Mr. Page confided to his aunt that no reasonable amount of correction seeming to avail, he was at a loss to know what to do with him. She suggested that inasmuch as desperate cases require desperate remedies, she thought they might be justified in trying one in the present instance, and that he himself might be accessory thereto, if he would follow her lead.

To this he readily assented, and shortly thereafter they contrived to be in a room near a portière, where Harry, on the other side, might suppose they did not know of his presence. The first words that caught his attention were from the aunt:

"I'm sorry," said she, "that you are so worried about Harry's troublesome pranks. I saw that young imbecile neighbor of yours, to-day. I think Harry has certainly more sense than he has; don't you?" [Good gracious! thought Harry.]

"Yes, in some directions," said Mr. Page.

"I'm sure he has. How long since Harry began to show this tendency, was it since some terrible fall or some severe illness?"

O, no; I think he was born with this failing. I had hoped that he would have outgrown it by this time."

"I think he may yet outgrow it, at any rate, that part of it which proves so annoying to others. Of course, good, wholesome fun is harmless—it has, indeed, its uses."

At this point the speakers heard Harry go softly out of the room, and the conversation ended.

"Think I'm idiotic, do they—a screw loose somewhere!" pondered Harry, as with burning cheeks and blazing eyes he rubbed his head and staved off to the barn, like a wild boy.

"Well, I'll show them all to the contrary very soon, or else my name is not Harry Page."

And so he did. This "heroic treatment," as the doctors call their desperate remedies for desperate cases, was the cure.

SNAKES.

There are from fifteen hundred to eighteen hundred different species of snakes; some of the most deadly nature, others harmless. Many inhabit the temperate zones, but in the tropics they abound, and seem to thrive in the richer vegetation and warmer climate.

Among the largest are the boas, pythons and cobras. There are burrowing snakes which live under ground, and come only occasionally to the surface of the earth, and sea snakes, which are unable to live on the land. Also, tree snakes, which climb through the branches of trees or bushes.

The snake's power of locomotion is peculiar, for it moves over the ground in curves, or by contracting and expanding the body. It is supposed by some that when a snake is about to strike an object, it can spring from the earth leaving its body entirely without support; but another idea is that this is impossible, and that the forward part of the body only is projected, while the tail still rests upon the ground.

The tree snakes of the tropics are exceedingly beautiful in form and coloring; they live almost entirely in the trees, and very seldom descend to the earth. Their food consists of birds, tree-frogs, lizards, and whatever living creatures they can catch in their tree homes.

The rattlesnake is peculiar to America, and of it there are three species, each one looked upon with dread, for the bite, or sting, of all is deadly. The species are the Crotalus horridus, C. durissus and C. miliaris. All have the rattles on the ends of the tails, and with these they give warning of their presence, not attacking unless they are themselves attacked. The first species is found in the warmer parts of North and South America. It is about eight feet long, of a yellowish-brown color with a broad, dark streak on either side of the neck, and dark spots scattered over the body. The

second species is found as far north as the southern shores of the great lakes. It is of a pale brown with spots, and sometimes bands of a darker color on the body. The third species is smaller, but none the less dreaded, as its rattle is weaker, thus less certain of giving warning of its presence. It is of an olive-brown on the back, with brown spots on the sides and back, the under part of the body black.

Snakes are torpid in cold, but very active in warm weather,

The Cobra de Capello is a large and peculiar snake, found in the West Indies, India, Africa, Asia and Australia. It is looked upon with dread, as its bite is deadly, often causing death in two hours. It is of a pale brown color above, and a yellowish-white beneath, and is most peculiarly marked on the back of the neck with a figure which is like a pair of spectacles, and is sometimes called the Spectacle Snake. Another peculiarity is that when the anger of these reptiles is excited they have the power of dilating the sides and back of the neck, which gives it the appearance of having on a hood, hence it is often called the Hooded Snake.

The Pythons of Asia and Africa, and the Boa constrictor of the warmer parts of America, the largest of which are called Anacondas, kill their prey by coiling themselves round the object, and after killing it they swallow it whole. After having thus gorged themselves they are torpid for some time, often several weeks, and then they again awaken with renewed vigor. They are large creatures, some measuring twelve feet in length, and the coloring of some of them is very beautiful.

Although there is much that is very repulsive in serpents, there is also much to interest, and many of them have even beauty to be admired.

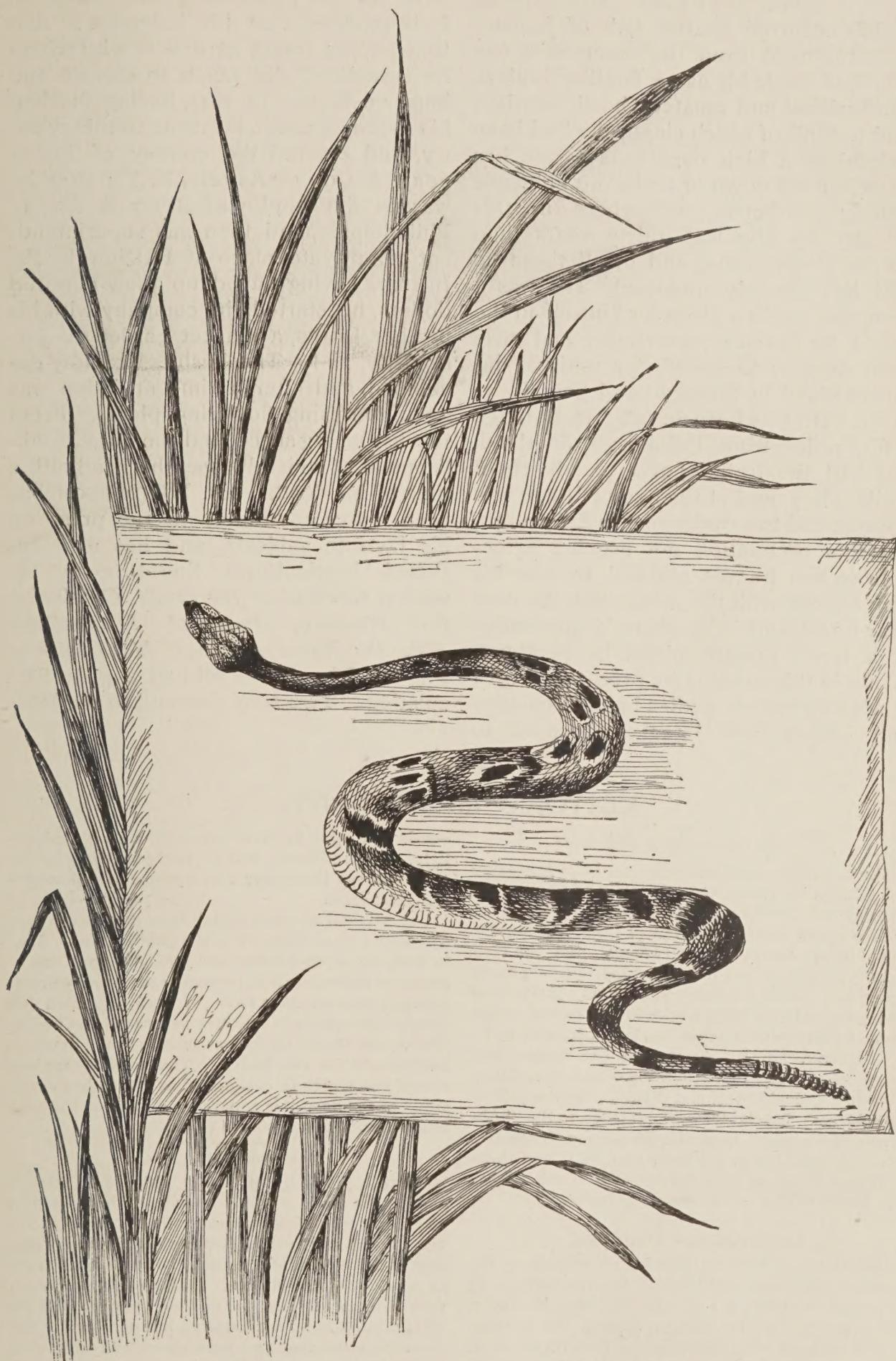
M. E. B.

PANSIES.

O, Pansies, with your speaking faces
Peeping up from grimy mold,
You're like children grouped in places,
Charmed and telling tales of old;
Places charmed, in tangled wildwood,
Sitting on some mossy knoll,
Innocent and laughing childhood
Telling stories quaint and droll.

Faces fronting, faces sidewise,
As with listening, all intent;
While to bees and butterflies
Some coquettish ear is lent.
Sweet Pansies, in your smiling faces,
Friends long lost again I see,
Grouped in bright, celestial places,
Angels, gently beckoning me.

E. W. P.



CROTALUS DURISSUS, OR COMMON RATTLESNAKE.

PETER HENDERSON.

The death of PETER HENDERSON, which occurred on the 17th of January last, removed from the community one who had made his name familiar both to professional and amateur horticulturists, and to both of which classes he had been helpful in a high degree. No one has been better known or had more influence among gardeners everywhere in this country for the last thirty years than PETER HENDERSON, and by all these he will be sincerely mourned. He was a man who made a place for himself in the world by his own exertions, and rose from poverty to wealth by untiring industry aided by foresight and good judgment. He was born in 1823, at a village a few miles from Edinburgh, Scotland. He had the training of a parish school while a boy, and at the age of fifteen was apprenticed to a tradesman in Edinburgh, but this occupation not proving agreeable to him he was allowed to take his own course, with the result that the next year he became a gardener's apprentice at a large private place in Scotland. While in this relation he prosecuted with much success his studies in mathematics and botany, and later commenced to

write for the press on garden subjects. It is reported that his influence at that time among young gardeners with whom he associated did much to elevate and improve them. In 1843, having finished his apprenticeship, he came to this country, and entered the employ of THORBURN & Co., of Astoria, N. Y.; later he was in the employ of BUIST & Co., of Philadelphia, and then was superintendent of a private place at Pittsburgh, Pa. In 1847, having saved up a few hundred dollars, he started, in company with his brother JAMES, a market garden in Jersey City, N. J. The business rapidly developed, and after a time attention was given to raising flowering plants. From this beginning succeeded the large establishment of which he was the head at the time of his death. Mr. HENDERSON has been a free contributor to the press on his favorite subjects, and has also enriched horticultural literature by his works, *Gardening for Profit*, *Gardening for Pleasure*, *Practical Floriculture*, *How the Farm Pays* and *Hand-book of Plants*. These have all had a great circulation. Two sons succeed to the business.

EDITOR'S MISCELLANY.

THE LAW OF HUSBAND AND WIFE.

The wives and husbands who read this Magazine and take an interest in the cultivation of flowers, we imagine care but little about the civil laws in regard to their social relation; the law of love, that highest law to them, contravenes all others. But the civil status of husband and wife has importance on many occasions, and as a guide, without any pretence of taking the place of legal advice in any special case, a manual with the above title has been prepared by L. J. ROBINSON, LL. B., member of the Boston bar. Marriage, property rights, custody of children, claims of widow and widower, and divorce, are the principal subjects. Special interest attaches to the "Abstracts of Statutes" in all the States and Territories concerning the law of husband and wife, and these abstracts occupy a large portion of the book. Price \$1. Published by Lee & Shepard, Boston.

DISPOSITION OF THE DEAD.

How the dead shall be disposed of, whether by the common method of earth burial, by cremation, or in some other manner, is a question that has a live issue, and occasionally it becomes prominent. On October 23d an address was delivered by Rev. CHARLES B. TREAT, of New York, before the American Public Health Association, at Brooklyn, N. Y., on the Ideal Disposition of the Dead, in which he proposed a method of dessication of bodies, which are after-

wards laid away in mausoleums to remain indefinitely. This address, which was published in the *Sanitarian* of December last, has now been issued in pamphlet form.

The method of earth burial that now prevails is apparently so satisfactory to the public, and so fixed by long usage, that before any radical change can be made we think it will be necessary to show, by proofs stronger than any that have yet been presented that the present system is defective and endangers health. The proofs should be such as science would demand, and should be conclusive. The method noticed above, and which is designated as "the ideal disposition of the dead," is apparently a good one, though more elaborate than simple cremation.

THE TARTUFFIAN AGE

Is the title given by an Italian writer, Paul Manegazza, to a work recently issued on the hypocrisy and insincerity of the present time. The writer is very caustic and very interesting, and has the frankness to call a lie a lie; nor does he use any adjective to specialize a white lie. "Make an analysis of your doings for one day only of your life, and you will find that at least a hundred lies per day are necessary in order that you may stand well with yourself and with your neighbor." We must leave the reader to imagine what might be written on this subject, and to consult the book itself. Price \$1.25; Lee & Shepard, Boston, Mass.



BEGONIA SEMPERFLORENS
GIGANTEA ROSEA.